NUMERICAL TABLES

J. W. CAMPBELL

NUMERICAL TABLES

BY

J. W. CAMPBELL, Ph.D.
Professor of Mathematics, University of Alberta

Printed by The Douglas Printing Co., Ltd., Edmonton, Alta.

Copyright 1929, 1946
BY JOHN WILLIAM CAMPBELL

ALL RIGHTS RESERVED, INCLUDING THE RIGHT TO REPRODUCE
THIS BOOK OR PARTS THEREOF IN ANY FORM

PREFACE

THIS is a general four place table. It is divided into two parts, I and II. The first ten tables of Part I give the most elementary functions, tables XI and XII giving the circular functions of numbers and table XIV a brief table of hyperbolic values of convenience for instructional purposes. Part II gives more complete tables of hyperbolic functions in a form convenient for practical use.

One common form of page is used throughout, and this is conducive to ease in reading and interpolation. Instead of giving proportional parts with each table, a fly leaf on the back cover may be opened out and used with any table.

In tables V to VIII the natural and logarithmic values of sines, cosines and tangents are given at intervals of 0°.1, or 6′. Decimal interpolation therefore gives values at the nearest 0°.01. Interpolation by 1/6 intervals would give values to the nearest 1′, but decimal interpolation has the advantage of simplicity.

Tables IX and X give the logarithmic sines and tangents of small angles at intervals of 0°.01. They can be used to determine values to the nearest 0°.001 by interpolation, or to read values to the nearest 0°.01 direct instead of by interpolation in the general tables.

As already stated, tables XI and XII give the circular functions of numbers. It is true that the number which appears in the argument may be regarded as the radian measure of an angle, but such an interpretation is needlessly artificial. It has frequently been the practice in tables to give the radian measure equivalent of the angles in tables V and VI and to use those tables to give the circular functions of numbers. But, when so used, the tables are awkward for interpolation. Tables XI and XII, on the other hand, can be used with the same facility as any other table, and one is not continually making the artificial association of the argument with the radian measure of an angle.

The use of exponential and hyperbolic functions is natural and conducive to simplicity in many problems, but their use in numerical work has been hampered frequently by the lack of tables which could be used with facility. This has been because the functional values were given at such wide intervals of the argument that interpolation was inconvenient. The tables here given in Part II, however, make the exponential and hyperbolic functions useable with an ease equal to that of using common logarithms.

An Appendix gives notes on the various tables, and a handbook of formulae for use chiefly with the tables of Part II.

CONTENTS

TABLES

PART I

I $\log_{10} x$ 2
Four place tables

II x^2 4
First significant figures

III x^3 6
First significant figures

IV $1/x$ 8
First significant figures

V $\sin \varphi^\circ$ and $\cos \varphi^\circ$ 10
From 0.0 to 90.0 to four places

VI $\tan \varphi^\circ$ 14
From 0.0 to 90.0 to four places

VII $\log \sin \varphi^\circ$ and $\log \cos \varphi^\circ$ 16
From 0.0 to 90.0 to four places

VIII $\log \tan \varphi^\circ$ 20
From 0.0 to 90.0 to four places

IX $\log \sin \varphi^\circ$ 22
From 0.00 to 4.49 to four places

X $\log \tan \varphi^\circ$ 23
From 0.00 to 4.49 to four places

XI $\sin x$ and $\cos x$ 24
From 0.000 to 2.000 to four places

XII $\tan x$ 32
From 0.000 to 2.000 to four places

XIII $\log_e x$ 36
From 1.00 to 10.00 to four places

XIV e^x, e^{-x}, $\cosh x$, $\sinh x$ 38
Short table

Some Useful Relations and Values 38

PART II

XV $\sinh x$ and $\cosh x$ 40
From 0.000 to 3.000 to four decimal places
From 3.00 to 8.00 to five significant figures

XVI $\tanh x$ 54
From 0.000 to 1.800, 1.80 to 3.00 to four decimal places

XVII $(\sinh x)/x$ and $(\cosh x - 1)/x$ 58
From 0.000 to 1.000 to five decimal places
From 1.000 to 3.000 to four decimal places

CONTENTS

XVIII $(\cosh x)/x$ 70
From 0.000 to 0.500 to four significant figures
From 0.500 to 3.000 to four decimal places
XIX $\sinh x$ and $\cosh x$ 76
From 0.00 to 2.50 at intervals of .05 to seven decimal places
From 0.000 to 0.250 at intervals of .0005 to seven decimal places

APPENDIX

A. Notes on the Tables 77
B. Handbook of Formulae 78

PART I

TABLE I.

$\log_{10} x$
(mantissa)

x	0	1	2	3	4	5	6	7	8	9
10	.0000	0043	0086	0128	0170	0212	0253	0294	0334	0374
11	.0414	0453	0492	0531	0569	0607	0645	0682	0719	0755
12	.0792	0828	0864	0899	0934	0969	1004	1038	1072	1106
13	.1139	1173	1206	1239	1271	1303	1335	1367	1399	1430
14	.1461	1492	1523	1553	1584	1614	1644	1673	1703	1732
15	.1761	1790	1818	1847	1875	1903	1931	1959	1987	2014
16	.2041	2068	2095	2122	2148	2175	2201	2227	2253	2279
17	.2304	2330	2355	2380	2405	2430	2455	2480	2504	2529
18	.2553	2577	2601	2625	2648	2672	2695	2718	2742	2765
19	.2788	2810	2833	2856	2878	2900	2923	2945	2967	2989
20	.3010	3032	3054	3075	3096	3118	3139	3160	3181	3201
21	.3222	3243	3263	3284	3304	3324	3345	3365	3385	3404
22	.3424	3444	3464	3483	3502	3522	3541	3560	3579	3598
23	.3617	3636	3655	3674	3692	3711	3729	3747	3766	3784
24	.3802	3820	3838	3856	3874	3892	3909	3927	3945	3962
25	.3979	3997	4014	4031	4048	4065	4082	4099	4116	4133
26	.4150	4166	4183	4200	4216	4232	4249	4265	4281	4298
27	.4314	4330	4346	4362	4378	4393	4409	4425	4440	4456
28	.4472	4487	4502	4518	4533	4548	4564	4579	4594	4609
29	.4624	4639	4654	4669	4683	4698	4713	4728	4742	4757
30	.4771	4786	4800	4814	4829	4843	4857	4871	4886	4900
31	.4914	4928	4942	4955	4969	4983	4997	5011	5024	5038
32	.5051	5065	5079	5092	5105	5119	5132	5145	5159	5172
33	.5185	5198	5211	5224	5237	5250	5263	5276	5289	5302
34	.5315	5328	5340	5353	5366	5378	5391	5403	5416	5428
35	.5441	5453	5465	5478	5490	5502	5514	5527	5539	5551
36	.5563	5575	5587	5599	5611	5623	5635	5647	5658	5670
37	.5682	5694	5705	5717	5729	5740	5752	5763	5775	5786
38	.5798	5809	5821	5832	5843	5855	5866	5877	5888	5899
39	.5911	5922	5933	5944	5955	5966	5977	5988	5999	6010
40	.6021	6031	6042	6053	6064	6075	6085	6096	6107	6117
41	.6128	6138	6149	6160	6170	6180	6191	6201	6212	6222
42	.6232	6243	6253	6263	6274	6284	6294	6304	6314	6325
43	.6335	6345	6355	6365	6375	6385	6395	6405	6415	6425
44	.6435	6444	6454	6464	6474	6484	6493	6503	6513	6522
45	.6532	6542	6551	6561	6571	6580	6590	6599	6609	6618
46	.6628	6637	6646	6656	6665	6675	6684	6693	6702	6712
47	.6721	6730	6739	6749	6758	6767	6776	6785	6794	6803
48	.6812	6821	6830	6839	6848	6857	6866	6875	6884	6893
49	.6902	6911	6920	6928	6937	6946	6955	6964	6972	6981
50	.6990	6998	7007	7016	7024	7033	7042	7050	7059	7067
51	.7076	7084	7093	7101	7110	7118	7126	7135	7143	7152
52	.7160	7168	7177	7185	7193	7202	7210	7218	7226	7235
53	.7243	7251	7259	7267	7275	7284	7292	7300	7308	7316
54	.7324	7332	7340	7348	7356	7364	7372	7380	7388	7396

TABLE I.

$\log_{10} x$ (mantissa)

x	0	1	2	3	4	5	6	7	8	9
55	.7404	7412	7419	7427	7435	7443	7451	7459	7466	7474
56	.7482	7490	7497	7505	7513	7520	7528	7536	7543	7551
57	.7559	7566	7574	7582	7589	7597	7604	7612	7619	7627
58	.7634	7642	7649	7657	7664	7672	7679	7686	7694	7701
59	.7709	7716	7723	7731	7738	7745	7752	7760	7767	7774
60	.7782	7789	7796	7803	7810	7818	7825	7832	7839	7846
61	.7853	7860	7868	7875	7882	7889	7896	7903	7910	7917
62	.7924	7931	7938	7945	7952	7959	7966	7973	7980	7987
63	.7993	8000	8007	8014	8021	8028	8035	8041	8048	8055
64	.8062	8069	8075	8082	8089	8096	8102	8109	8116	8122
65	.8129	8136	8142	8149	8156	8162	8169	8176	8182	8189
66	.8195	8202	8209	8215	8222	8228	8235	8241	8248	8254
67	.8261	8267	8274	8280	8287	8293	8299	8306	8312	8319
68	.8325	8331	8338	8344	8351	8357	8363	8370	8376	8382
69	.8388	8395	8401	8407	8414	8420	8426	8432	8439	8445
70	.8451	8457	8463	8470	8476	8482	8488	8494	8500	8506
71	.8513	8519	8525	8531	8537	8543	8549	8555	8561	8567
72	.8573	8579	8585	8591	8597	8603	8609	8615	8621	8627
73	.8633	8639	8645	8651	8657	8663	8669	8675	8681	8686
74	.8692	8698	8704	8710	8716	8722	8727	8733	8739	8745
75	.8751	8756	8762	8768	8774	8779	8785	8791	8797	8802
76	.8808	8814	8820	8825	8831	8837	8842	8848	8854	8859
77	.8865	8871	8876	8882	8887	8893	8899	8904	8910	8915
78	.8921	8927	8932	8938	8943	8949	8954	8960	8965	8971
79	.8976	8982	8987	8993	8998	9004	9009	9015	9020	9025
80	.9031	9036	9042	9047	9053	9058	9063	9069	9074	9079
81	.9085	9090	9096	9101	9106	9112	9117	9122	9128	9133
82	.9138	9143	9149	9154	9159	9165	9170	9175	9180	9186
83	.9191	9196	9201	9206	9212	9217	9222	9227	9232	9238
84	.9243	9248	9253	9258	9263	9269	9274	9279	9284	9289
85	.9294	9299	9304	9309	9315	9320	9325	9330	9335	9340
86	.9345	9350	9355	9360	9365	9370	9375	9380	9385	9390
87	.9395	9400	9405	9410	9415	9420	9425	9430	9435	9440
88	.9445	9450	9455	9460	9465	9469	9474	9479	9484	9489
89	.9494	9499	9504	9509	9513	9518	9523	9528	9533	9538
90	.9542	9547	9552	9557	9562	9566	9571	9576	9581	9586
91	.9590	9595	9600	9605	9609	9614	9619	9624	9628	9633
92	.9638	9643	9647	9652	9657	9661	9666	9671	9675	9680
93	.9685	9689	9694	9699	9703	9708	9713	9717	9722	9727
94	.9731	9736	9741	9745	9750	9754	9759	9763	9768	9773
95	.9777	9782	9786	9791	9795	9800	9805	9809	9814	9818
96	.9823	9827	9832	9836	9841	9845	9850	9854	9859	9863
97	.9868	9872	9877	9881	9886	9890	9894	9899	9903	9908
98	.9912	9917	9921	9926	9930	9934	9939	9943	9948	9952
99	.9956	9961	9965	9969	9974	9978	9983	9987	9991	9996

TABLE II.

x^2

(First significant figures)

x	0	1	2	3	4	5	6	7	8	9
10	1000	1020	1040	1061	1082	1103	1124	1145	1166	1188
11	1210	1232	1254	1277	1300	1323	1346	1369	1392	1416
12	1440	1464	1488	1513	1538	1563	1588	1613	1638	1664
13	1690	1716	1742	1769	1796	1823	1850	1877	1904	1932
14	1960	1988	2016	2045	2074	2103	2132	2161	2190	2220
15	2250	2280	2310	2341	2372	2403	2434	2465	2496	2528
16	2560	2592	2624	2657	2690	2723	2756	2789	2822	2856
17	2890	2924	2958	2993	3028	3063	3098	3133	3168	3204
18	3240	3276	3312	3349	3386	3423	3460	3497	3534	3572
19	3610	3648	3686	3725	3764	3803	3842	3881	3920	3960
20	4000	4040	4080	4121	4162	4203	4244	4285	4326	4368
21	4410	4452	4494	4537	4580	4623	4666	4709	4752	4796
22	4840	4884	4928	4973	5018	5063	5108	5153	5198	5244
23	5290	5336	5382	5429	5476	5523	5570	5617	5664	5712
24	5760	5808	5856	5905	5954	6003	6052	6101	6150	6200
25	6250	6300	6350	6401	6452	6503	6554	6605	6656	6708
26	6760	6812	6864	6917	6970	7023	7076	7129	7182	7236
27	7290	7344	7398	7453	7508	7563	7618	7673	7728	7784
28	7840	7896	7952	8009	8066	8123	8180	8237	8294	8352
29	8410	8468	8526	8585	8644	8703	8762	8821	8880	8940
30	9000	9060	9120	9181	9242	9303	9364	9425	9486	9548
31	9610	9672	9734	9797	9860	9923	9986	10049	10112	10176
32	1024	1030	1037	1043	1050	1056	1063	1069	1076	1082
33	1089	1096	1102	1109	1116	1122	1129	1136	1142	1149
34	1156	1163	1170	1176	1183	1190	1197	1204	1211	1218
35	1225	1232	1239	1246	1253	1260	1267	1274	1282	1289
36	1296	1303	1310	1318	1325	1332	1340	1347	1354	1362
37	1369	1376	1384	1391	1399	1406	1414	1421	1429	1436
38	1444	1452	1459	1467	1475	1482	1490	1498	1505	1513
39	1521	1529	1537	1544	1552	1560	1568	1576	1584	1592
40	1600	1608	1616	1624	1632	1640	1648	1656	1665	1673
41	1681	1689	1697	1706	1714	1722	1731	1739	1747	1756
42	1764	1772	1781	1789	1798	1806	1815	1823	1832	1840
43	1849	1858	1866	1875	1884	1892	1901	1910	1918	1927
44	1936	1945	1954	1962	1971	1980	1989	1998	2007	2016
45	2025	2034	2043	2052	2061	2070	2079	2088	2098	2107
46	2116	2125	2134	2144	2153	2162	2172	2181	2190	2200
47	2209	2218	2228	2237	2247	2256	2266	2275	2285	2294
48	2304	2314	2323	2333	2343	2352	2362	2372	2381	2391
49	2401	2411	2421	2430	2440	2450	2460	2470	2480	2490
50	2500	2510	2520	2530	2540	2550	2560	2570	2581	2591
51	2601	2611	2621	2632	2642	2652	2663	2673	2683	2694
52	2704	2714	2725	2735	2746	2756	2767	2777	2788	2798
53	2809	2820	2830	2841	2852	2862	2873	2884	2894	2905
54	2916	2927	2938	2948	2959	2970	2981	2992	3003	3014

TABLE II.

x^2
(First significant figures)

x	0	1	2	3	4	5	6	7	8	9
55	3025	3036	3047	3058	3069	3080	3091	3102	3114	3125
56	3136	3147	3158	3170	3181	3192	3204	3215	3226	3238
57	3249	3260	3272	3283	3295	3306	3318	3329	3341	3352
58	3364	3376	3387	3399	3411	3422	3434	3446	3457	3469
59	3481	3493	3505	3516	3528	3540	3552	3564	3576	3588
60	3600	3612	3624	3636	3648	3660	3672	3684	3697	3709
61	3721	3733	3745	3758	3770	3782	3795	3807	3819	3832
62	3844	3856	3869	3881	3894	3906	3919	3931	3944	3956
63	3969	3982	3994	4007	4020	4032	4045	4058	4070	4083
64	4096	4109	4122	4134	4147	4161	4173	4186	4199	4212
65	4225	4238	4251	4264	4277	4290	4303	4316	4330	4343
66	4356	4369	4382	4396	4409	4422	4436	4449	4462	4476
67	4489	4502	4516	4529	4543	4556	4570	4583	4597	4610
68	4624	4638	4651	4665	4679	4692	4706	4720	4733	4747
69	4761	4775	4789	4802	4816	4830	4844	4858	4872	4886
70	4900	4914	4928	4942	4956	4970	4984	4998	5013	5027
71	5041	5055	5069	5084	5098	5112	5127	5141	5155	5170
72	5184	5198	5213	5227	5242	5256	5271	5285	5300	5314
73	5329	5344	5358	5373	5388	5402	5417	5432	5446	5461
74	5476	5491	5506	5520	5535	5550	5565	5580	5595	5610
75	5625	5640	5655	5670	5685	5700	5715	5730	5746	5761
76	5776	5791	5806	5822	5837	5852	5868	5883	5898	5914
77	5929	5944	5960	5975	5991	6006	6022	6037	6053	6068
78	6084	6100	6115	6131	6147	6162	6178	6194	6209	6225
79	6241	6257	6273	6288	6304	6320	6336	6352	6368	6384
80	6400	6416	6432	6448	6464	6480	6496	6512	6529	6545
81	6561	6577	6593	6610	6626	6642	6659	6675	6691	6708
82	6724	6740	6756	6773	6790	6806	6823	6839	6856	6872
83	6889	6906	6922	6939	6956	6972	6989	7006	7022	7039
84	7056	7073	7090	7106	7123	7140	7157	7174	7191	7208
85	7225	7242	7259	7276	7293	7310	7327	7344	7362	7379
86	7396	7413	7430	7448	7465	7482	7500	7517	7534	7552
87	7569	7586	7604	7621	7639	7656	7674	7691	7709	7726
88	7744	7762	7779	7797	7815	7832	7850	7868	7885	7903
89	7921	7939	7957	7974	7992	8010	8028	8046	8064	8082
90	8100	8118	8136	8154	8172	8190	8208	8226	8245	8263
91	8281	8299	8317	8336	8354	8372	8391	8409	8427	8446
92	8464	8482	8501	8519	8538	8556	8575	8593	8612	8630
93	8649	8668	8686	8705	8724	8742	8761	8780	8798	8817
94	8836	8855	8874	8892	8911	8930	8949	8968	8987	9006
95	9025	9044	9063	9082	9101	9120	9139	9158	9178	9197
96	9216	9235	9254	9274	9293	9312	9332	9351	9370	9390
97	9409	9428	9448	9467	9487	9506	9526	9545	9565	9584
98	9604	9624	9643	9663	9683	9702	9722	9742	9761	9781
99	9801	9821	9841	9860	9880	9900	9920	9940	9960	9980

TABLE III.

x^3

(First significant figures)

x	0	1	2	3	4	5	6	7	8	9
10	1000	1030	1061	1093	1125	1158	1191	1225	1260	1295
11	1331	1368	1405	1443	1482	1521	1561	1602	1643	1685
12	1728	1772	1816	1861	1907	1953	2000	2048	2097	2147
13	2197	2248	2300	2353	2406	2460	2515	2571	2628	2686
14	2744	2803	2863	2924	2986	3049	3112	3177	3242	3308
15	3375	3443	3512	3582	3652	3724	3796	3870	3944	4020
16	4096	4173	4252	4331	4411	4492	4574	4657	4742	4827
17	4913	5000	5088	5178	5268	5359	5452	5545	5640	5735
18	5832	5930	6029	6128	6230	6332	6435	6539	6645	6751
19	6859	6968	7078	7189	7301	7415	7530	7645	7762	7881
20	8000	8121	8242	8365	8490	8615	8742	8870	8999	9129
21	9261	9394	9528	9664	9800	9938	10078	10218	10360	10503
22	1065	1079	1094	1109	1124	1139	1154	1170	1185	1201
23	1217	1233	1249	1265	1281	1298	1314	1331	1348	1365
24	1382	1400	1417	1435	1453	1471	1489	1507	1525	1544
25	1563	1581	1600	1619	1639	1658	1678	1697	1717	1737
26	1758	1778	1798	1819	1840	1861	1882	1903	1925	1947
27	1968	1990	2012	2035	2057	2080	2102	2125	2148	2172
28	2195	2219	2243	2267	2291	2315	2339	2364	2389	2414
29	2439	2464	2490	2515	2541	2567	2593	2620	2646	2673
30	2700	2727	2754	2782	2809	2837	2865	2893	2922	2950
31	2979	3008	3037	3066	3096	3126	3155	3186	3216	3246
32	3277	3308	3339	3370	3401	3433	3465	3497	3529	3561
33	3594	3626	3659	3693	3726	3760	3793	3827	3861	3896
34	3930	3965	4000	4035	4071	4106	4142	4178	4214	4251
35	4288	4324	4361	4399	4436	4474	4512	4550	4588	4627
36	4666	4705	4744	4783	4823	4863	4903	4943	4984	5024
37	5065	5106	5148	5190	5231	5273	5316	5358	5401	5444
38	5487	5531	5574	5618	5662	5707	5751	5796	5841	5886
39	5932	5978	6024	6070	6116	6163	6210	6257	6304	6352
40	6400	6448	6496	6545	6594	6643	6692	6742	6792	6842
41	6892	6943	6993	7044	7096	7147	7199	7251	7303	7356
42	7409	7462	7515	7569	7623	7677	7731	7785	7840	7895
43	7951	8006	8062	8118	8175	8231	8288	8345	8403	8460
44	8518	8577	8635	8694	8753	8812	8872	8931	8992	9052
45	9113	9173	9235	9296	9358	9420	9482	9544	9607	9670
46	9734	9797	9861	9925	9990	10054	10119	10185	10250	10316
47	1038	1045	1052	1058	1065	1072	1079	1085	1092	1099
48	1106	1113	1120	1127	1134	1141	1148	1155	1162	1169
49	1176	1184	1191	1198	1206	1213	1220	1228	1235	1243
50	1250	1258	1265	1273	1280	1288	1296	1303	1311	1319
51	1327	1334	1342	1350	1358	1366	1374	1382	1390	1398
52	1406	1414	1422	1431	1439	1447	1455	1464	1472	1480
53	1489	1497	1506	1514	1523	1531	1540	1549	1557	1566
54	1575	1583	1592	1601	1610	1619	1628	1637	1646	1655

TABLE III.

x^3
(First significant figures)

x	0	1	2	3	4	5	6	7	8	9
55	1664	1673	1682	1691	1700	1710	1719	1728	1737	1747
56	1756	1766	1775	1785	1794	1804	1813	1823	1833	1842
57	1852	1862	1871	1881	1891	1901	1911	1921	1931	1941
58	1951	1961	1971	1982	1992	2002	2012	2023	2033	2043
59	2054	2064	2075	2085	2096	2106	2117	2128	2138	2149
60	2160	2171	2182	2193	2203	2214	2225	2236	2248	2259
61	2270	2281	2292	2303	2315	2326	2337	2349	2360	2372
62	2383	2395	2406	2418	2430	2441	2453	2465	2477	2489
63	2500	2512	2524	2536	2548	2560	2573	2585	2597	2609
64	2621	2634	2646	2658	2671	2683	2696	2708	2721	2734
65	2746	2759	2772	2784	2797	2810	2823	2836	2849	2862
66	2875	2888	2901	2914	2928	2941	2954	2967	2981	2994
67	3008	3021	3035	3048	3062	3075	3089	3103	3117	3130
68	3144	3158	3172	3186	3200	3214	3228	3242	3257	3271
69	3285	3299	3314	3328	3343	3357	3372	3386	3401	3415
70	3430	3445	3459	3474	3489	3504	3519	3534	3549	3564
71	3579	3594	3609	3625	3640	3655	3671	3686	3701	3717
72	3732	3748	3764	3779	3795	3811	3827	3842	3858	3874
73	3890	3906	3922	3938	3954	3971	3987	4003	4019	4036
74	4052	4069	4085	4102	4118	4135	4152	4168	4185	4202
75	4219	4236	4253	4270	4287	4304	4321	4338	4355	4372
76	4390	4407	4425	4442	4459	4477	4495	4512	4530	4548
77	4565	4583	4601	4619	4637	4655	4673	4691	4709	4727
78	4746	4764	4782	4800	4819	4837	4856	4874	4893	4912
79	4930	4949	4968	4987	5006	5025	5044	5063	5082	5101
80	5120	5139	5158	5178	5197	5217	5236	5256	5275	5295
81	5314	5334	5354	5374	5394	5413	5433	5453	5473	5494
82	5514	5534	5554	5574	5595	5615	5636	5656	5677	5697
83	5718	5739	5759	5780	5801	5822	5843	5864	5885	5906
84	5927	5948	5969	5991	6012	6034	6055	6076	6098	6120
85	6141	6163	6185	6207	6228	6250	6272	6294	6316	6338
86	6361	6383	6405	6427	6450	6472	6495	6517	6540	6562
87	6585	6608	6631	6653	6676	6699	6722	6745	6768	6792
88	6815	6838	6861	6885	6908	6932	6955	6979	7002	7026
89	7050	7073	7097	7121	7145	7169	7193	7217	7242	7266
90	7290	7314	7339	7363	7388	7412	7437	7461	7486	7511
91	7536	7561	7586	7610	7636	7661	7686	7711	7736	7762
92	7787	7812	7838	7863	7889	7915	7940	7966	7992	8018
93	8044	8070	8096	8122	8148	8174	8200	8227	8253	8279
94	8306	8332	8359	8386	8412	8439	8466	8493	8520	8547
95	8574	8601	8628	8655	8683	8710	8737	8765	8792	8820
96	8847	8875	8903	8931	8958	8986	9014	9042	9070	9099
97	9127	9155	9183	9212	9240	9269	9297	9326	9354	9383
98	9412	9441	9470	9499	9528	9557	9586	9615	9644	9674
99	9703	9732	9762	9791	9821	9851	9880	9910	9940	9970

TABLE IV.

$1/x$

(First significant figures)

x	0	1	2	3	4	5	6	7	8	9
10	10000	9901	9804	9709	9615	9524	9434	9346	9259	9174
11	9091	9009	8929	8850	8772	8696	8621	8547	8475	8403
12	8333	8264	8197	8130	8065	8000	7937	7874	7813	7752
13	7692	7634	7576	7519	7463	7407	7353	7299	7246	7194
14	7143	7092	7042	6993	6944	6897	6849	6803	6757	6711
15	6667	6623	6579	6536	6494	6452	6410	6369	6329	6289
16	6250	6211	6173	6135	6098	6061	6024	5988	5952	5917
17	5882	5848	5814	5780	5747	5714	5682	5650	5618	5587
18	5556	5525	5495	5464	5435	5405	5376	5348	5319	5291
19	5263	5236	5208	5181	5155	5128	5102	5076	5051	5025
20	5000	4975	4950	4926	4902	4878	4854	4831	4808	4785
21	4762	4739	4717	4695	4673	4651	4630	4608	4587	4566
22	4545	4525	4505	4484	4464	4444	4425	4405	4386	4367
23	4348	4329	4310	4292	4274	4255	4237	4219	4202	4184
24	4167	4149	4132	4115	4098	4082	4065	4049	4032	4016
25	4000	3984	3968	3953	3937	3922	3906	3891	3876	3861
26	3846	3831	3817	3802	3788	3774	3759	3745	3731	3717
27	3704	3690	3676	3663	3650	3636	3623	3610	3597	3584
28	3571	3559	3546	3534	3521	3509	3497	3484	3472	3460
29	3448	3436	3425	3413	3401	3390	3378	3367	3356	3344
30	3333	3322	3311	3300	3289	3279	3268	3257	3247	3236
31	3226	3215	3205	3195	3185	3175	3165	3155	3145	3135
32	3125	3115	3106	3096	3086	3077	3067	3058	3049	3040
33	3030	3021	3012	3003	2994	2985	2976	2967	2959	2950
34	2941	2933	2924	2915	2907	2899	2890	2882	2874	2865
35	2857	2849	2841	2833	2825	2817	2809	2801	2793	2786
36	2778	2770	2762	2755	2747	2740	2732	2725	2717	2710
37	2703	2695	2688	2681	2674	2667	2660	2653	2646	2639
38	2632	2625	2618	2611	2604	2597	2591	2584	2577	2571
39	2564	2558	2551	2545	2538	2532	2525	2519	2513	2506
40	2500	2494	2488	2481	2475	2469	2463	2457	2451	2445
41	2439	2433	2427	2421	2415	2410	2404	2398	2392	2387
42	2381	2375	2370	2364	2358	2353	2347	2342	2336	2331
43	2326	2320	2315	2309	2304	2299	2294	2288	2283	2278
44	2273	2268	2262	2257	2252	2247	2242	2237	2232	2227
45	2222	2217	2212	2208	2203	2198	2193	2188	2183	2179
46	2174	2169	2165	2160	2155	2151	2146	2141	2137	2132
47	2128	2123	2119	2114	2110	2105	2101	2096	2092	2088
48	2083	2079	2075	2070	2066	2062	2058	2053	2049	2045
49	2041	2037	2033	2028	2024	2020	2016	2012	2008	2004
50	2000	1996	1992	1988	1984	1980	1976	1972	1969	1965
51	1961	1957	1953	1949	1946	1942	1938	1934	1931	1927
52	1923	1919	1916	1912	1908	1905	1901	1898	1894	1890
53	1887	1883	1880	1876	1873	1869	1866	1862	1859	1855
54	1852	1848	1845	1842	1838	1835	1832	1828	1825	1821
55	1818	1815	1812	1808	1805	1802	1799	1795	1792	1789
56	1786	1783	1779	1776	1773	1770	1767	1764	1761	1757
57	1754	1751	1748	1745	1742	1739	1736	1733	1730	1727
58	1724	1721	1718	1715	1712	1709	1706	1704	1701	1698
59	1695	1692	1689	1686	1684	1681	1678	1675	1672	1669

TABLE IV.

$1/x$

(First significant figures)

x	0	1	2	3	4	5	6	7	8	9
60	1667	1664	1661	1658	1656	1653	1650	1647	1645	1642
61	1639	1637	1634	1631	1629	1626	1623	1621	1618	1616
62	1613	1610	1608	1605	1603	1600	1597	1595	1592	1590
63	1587	1585	1582	1580	1577	1575	1572	1570	1567	1565
64	1563	1560	1558	1555	1553	1550	1548	1546	1543	1541
65	1538	1536	1534	1531	1529	1527	1524	1522	1520	1517
66	1515	1513	1511	1508	1506	1504	1502	1499	1497	1495
67	1493	1490	1488	1486	1484	1481	1479	1477	1475	1473
68	1471	1468	1466	1464	1462	1460	1458	1456	1453	1451
69	1449	1447	1445	1443	1441	1439	1437	1435	1433	1431
70	1429	1427	1425	1422	1420	1418	1416	1414	1412	1410
71	1408	1406	1404	1403	1401	1399	1397	1395	1393	1391
72	1389	1387	1385	1383	1381	1379	1377	1376	1374	1372
73	1370	1368	1366	1364	1362	1361	1359	1357	1355	1353
74	1351	1350	1348	1346	1344	1342	1340	1339	1337	1335
75	1333	1332	1330	1328	1326	1325	1323	1321	1319	1318
76	1316	1314	1312	1311	1309	1307	1305	1304	1302	1300
77	1299	1297	1295	1294	1292	1290	1289	1287	1285	1284
78	1282	1280	1279	1277	1276	1274	1272	1271	1269	1267
79	1266	1264	1263	1261	1259	1258	1256	1255	1253	1252
80	1250	1248	1247	1245	1244	1242	1241	1239	1238	1236
81	1235	1233	1232	1230	1229	1227	1225	1224	1222	1221
82	1220	1218	1217	1215	1214	1212	1211	1209	1208	1206
83	1205	1203	1202	1200	1199	1198	1196	1195	1193	1192
84	1190	1189	1188	1186	1185	1183	1182	1181	1179	1178
85	1176	1175	1174	1172	1171	1170	1168	1167	1166	1164
86	1163	1161	1160	1159	1157	1156	1155	1153	1152	1151
87	1149	1148	1147	1145	1144	1143	1142	1140	1139	1138
88	1136	1135	1134	1133	1131	1130	1129	1127	1126	1125
89	1124	1122	1121	1120	1119	1117	1116	1115	1114	1112
90	1111	1110	1109	1107	1106	1105	1104	1103	1101	1100
91	1099	1098	1096	1095	1094	1093	1092	1091	1089	1088
92	1087	1086	1085	1083	1082	1081	1080	1079	1078	1076
93	1075	1074	1073	1072	1071	1070	1068	1067	1066	1065
94	1064	1063	1062	1060	1059	1058	1057	1056	1055	1054
95	1053	1052	1050	1049	1048	1047	1046	1045	1044	1043
96	1042	1041	1040	1038	1037	1036	1035	1034	1033	1032
97	1031	1030	1029	1028	1027	1026	1025	1024	1022	1021
98	1020	1019	1018	1017	1016	1015	1014	1013	1012	1011
99	1010	1009	1008	1007	1006	1005	1004	1003	1002	1001
100	1000	9990	9980	9970	9960	9950	9940	9930	9921	9911
101	9901	9891	9881	9872	9862	9852	9843	9833	9823	9814
102	9804	9794	9785	9775	9766	9756	9747	9737	9728	9718
103	9709	9699	9690	9681	9671	9662	9653	9643	9634	9625
104	9615	9606	9597	9588	9579	9569	9560	9551	9542	9533
105	9524	9515	9506	9497	9488	9479	9470	9461	9452	9443
106	9434	9425	9416	9407	9398	9390	9381	9372	9363	9355
107	9346	9337	9328	9320	9311	9302	9294	9285	9276	9268
108	9259	9251	9242	9234	9225	9217	9208	9200	9191	9183
109	9174	9166	9158	9149	9141	9132	9124	9116	9107	9099

TABLE V.

$\sin \varphi^\circ$

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	.0000	0017	0035	0052	0070	0087	0105	0122	0140	0157
1	.0175	0192	0209	0227	0244	0262	0279	0297	0314	0332
2	.0349	0366	0384	0401	0419	0436	0454	0471	0488	0506
3	.0523	0541	0558	0576	0593	0610	0628	0645	0663	0680
4	.0698	0715	0732	0750	0767	0785	0802	0819	0837	0854
5	.0872	0889	0906	0924	0941	0958	0976	0993	1011	1028
6	.1045	1063	1080	1097	1115	1132	1149	1167	1184	1201
7	.1219	1236	1253	1271	1288	1305	1323	1340	1357	1374
8	.1392	1409	1426	1444	1461	1478	1495	1513	1530	1547
9	.1564	1582	1599	1616	1633	1650	1668	1685	1702	1719
10	.1736	1754	1771	1788	1805	1822	1840	1857	1874	1891
11	.1908	1925	1942	1959	1977	1994	2011	2028	2045	2062
12	.2079	2096	2113	2130	2147	2164	2181	2198	2215	2233
13	.2250	2267	2284	2300	2317	2334	2351	2368	2385	2402
14	.2419	2436	2453	2470	2487	2504	2521	2538	2554	2571
15	.2588	2605	2622	2639	2656	2672	2689	2706	2723	2740
16	.2756	2773	2790	2807	2823	2840	2857	2874	2890	2907
17	.2924	2940	2957	2974	2990	3007	3024	3040	3057	3074
18	.3090	3107	3123	3140	3156	3173	3190	3206	3223	3239
19	.3256	3272	3289	3305	3322	3338	3355	3371	3387	3404
20	.3420	3437	3453	3469	3486	3502	3518	3535	3551	3567
21	.3584	3600	3616	3633	3649	3665	3681	3697	3714	3730
22	.3746	3762	3778	3795	3811	3827	3843	3859	3875	3891
23	.3907	3923	3939	3955	3971	3987	4003	4019	4035	4051
24	.4067	4083	4099	4115	4131	4147	4163	4179	4195	4210
25	.4226	4242	4258	4274	4289	4305	4321	4337	4352	4368
26	.4384	4399	4415	4431	4446	4462	4478	4493	4509	4524
27	.4540	4555	4571	4586	4602	4617	4633	4648	4664	4679
28	.4695	4710	4726	4741	4756	4772	4787	4802	4818	4833
29	.4848	4863	4879	4894	4909	4924	4939	4955	4970	4985
30	.5000	5015	5030	5045	5060	5075	5090	5105	5120	5135
31	.5150	5165	5180	5195	5210	5225	5240	5255	5270	5284
32	.5299	5314	5329	5344	5358	5373	5388	5402	5417	5432
33	.5446	5461	5476	5490	5505	5519	5534	5548	5563	5577
34	.5592	5606	5621	5635	5650	5664	5678	5693	5707	5721
35	.5736	5750	5764	5779	5793	5807	5821	5835	5850	5864
36	.5878	5892	5906	5920	5934	5948	5962	5976	5990	6004
37	.6018	6032	6046	6060	6074	6088	6101	6115	6129	6143
38	.6157	6170	6184	6198	6211	6225	6239	6252	6266	6280
39	.6293	6307	6320	6334	6347	6361	6374	6388	6401	6414
40	.6428	6441	6455	6468	6481	6494	6508	6521	6534	6547
41	.6561	6574	6587	6600	6613	6626	6639	6652	6665	6678
42	.6691	6704	6717	6730	6743	6756	6769	6782	6794	6807
43	.6820	6833	6845	6858	6871	6884	6896	6909	6921	6934
44	.6947	6959	6972	6984	6997	7009	7022	7034	7046	7059

TABLE V.

$\cos \varphi^\circ$

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	9999	9999	9999	9999
1	.9998	9998	9998	9997	9997	9997	9996	9996	9995	9995
2	.9994	9993	9993	9992	9991	9990	9990	9989	9988	9987
3	.9986	9985	9984	9983	9982	9981	9980	9979	9978	9977
4	.9976	9974	9973	9972	9971	9969	9968	9966	9965	9963
5	.9962	9960	9959	9957	9956	9954	9952	9951	9949	9947
6	.9945	9943	9942	9940	9938	9936	9934	9932	9930	9928
7	.9925	9923	9921	9919	9917	9914	9912	9910	9907	9905
8	.9903	9900	9898	9895	9893	9890	9888	9885	9882	9880
9	.9877	9874	9871	9869	9866	9863	9860	9857	9854	9851
10	.9848	9845	9842	9839	9836	9833	9829	9826	9823	9820
11	.9816	9813	9810	9806	9803	9799	9796	9792	9789	9785
12	.9781	9778	9774	9770	9767	9763	9759	9755	9751	9748
13	.9744	9740	9736	9732	9728	9724	9720	9715	9711	9707
14	.9703	9699	9694	9690	9686	9681	9677	9673	9668	9664
15	.9659	9655	9650	9646	9641	9636	9632	9627	9622	9617
16	.9613	9608	9603	9598	9593	9588	9583	9578	9573	9568
17	.9563	9558	9553	9548	9542	9537	9532	9527	9521	9516
18	.9511	9505	9500	9494	9489	9483	9478	9472	9466	9461
19	.9455	9449	9444	9438	9432	9426	9421	9415	9409	9403
20	.9397	9391	9385	9379	9373	9367	9361	9354	9348	9342
21	.9336	9330	9323	9317	9311	9304	9298	9291	9285	9278
22	.9272	9265	9259	9252	9245	9239	9232	9225	9219	9212
23	.9205	9198	9191	9184	9178	9171	9164	9157	9150	9143
24	.9135	9128	9121	9114	9107	9100	9092	9085	9078	9070
25	.9063	9056	9048	9041	9033	9026	9018	9011	9003	8996
26	.8988	8980	8973	8965	8957	8949	8942	8934	8926	8918
27	.8910	8902	8894	8886	8878	8870	8862	8854	8846	8838
28	.8829	8821	8813	8805	8796	8788	8780	8771	8763	8755
29	.8746	8738	8729	8721	8712	8704	8695	8686	8678	8669
30	.8660	8652	8643	8634	8625	8616	8607	8599	8590	8581
31	.8572	8563	8554	8545	8536	8526	8517	8508	8499	8490
32	.8480	8471	8462	8453	8443	8434	8425	8415	8406	8396
33	.8387	8377	8368	8358	8348	8339	8329	8320	8310	8300
34	.8290	8281	8271	8261	8251	8241	8231	8221	8211	8202
35	.8192	8181	8171	8161	8151	8141	8131	8121	8111	8100
36	.8090	8080	8070	8059	8049	8039	8028	8018	8007	7997
37	.7986	7976	7965	7955	7944	7934	7923	7912	7902	7891
38	.7880	7869	7859	7848	7837	7826	7815	7804	7793	7782
39	.7771	7760	7749	7738	7727	7716	7705	7694	7683	7672
40	.7660	7649	7638	7627	7615	7604	7593	7581	7570	7559
41	.7547	7536	7524	7513	7501	7490	7478	7466	7455	7443
42	.7431	7420	7408	7396	7385	7373	7361	7349	7337	7325
43	.7314	7302	7290	7278	7266	7254	7242	7230	7218	7206
44	.7193	7181	7169	7157	7145	7133	7120	7108	7096	7083

TABLE V.

$\sin \varphi^\circ$

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
45	.7071	7083	7096	7108	7120	7133	7145	7157	7169	7181
46	.7193	7206	7218	7230	7242	7254	7266	7278	7290	7302
47	.7314	7325	7337	7349	7361	7373	7385	7396	7408	7420
48	.7431	7443	7455	7466	7478	7490	7501	7513	7524	7536
49	.7547	7559	7570	7581	7593	7604	7615	7627	7638	7649
50	.7660	7672	7683	7694	7705	7716	7727	7738	7749	7760
51	.7771	7782	7793	7804	7815	7826	7837	7848	7859	7869
52	.7880	7891	7902	7912	7923	7934	7944	7955	7965	7976
53	.7986	7997	8007	8018	8028	8039	8049	8059	8070	8080
54	.8090	8100	8111	8121	8131	8141	8151	8161	8171	8181
55	.8192	8202	8211	8221	8231	8241	8251	8261	8271	8281
56	.8290	8300	8310	8320	8329	8339	8348	8358	8368	8377
57	.8387	8396	8406	8415	8425	8434	8443	8453	8462	8471
58	.8480	8490	8499	8508	8517	8526	8536	8545	8554	8563
59	.8572	8581	8590	8599	8607	8616	8625	8634	8643	8652
60	.8660	8669	8678	8686	8695	8704	8712	8721	8729	8738
61	.8746	8755	8763	8771	8780	8788	8796	8805	8813	8821
62	.8829	8838	8846	8854	8862	8870	8878	8886	8894	8902
63	.8910	8918	8926	8934	8942	8949	8957	8965	8973	8980
64	.8988	8996	9003	9011	9018	9026	9033	9041	9048	9056
65	.9063	9070	9078	9085	9092	9100	9107	9114	9121	9128
66	.9135	9143	9150	9157	9164	9171	9178	9184	9191	9198
67	.9205	9212	9219	9225	9232	9239	9245	9252	9259	9265
68	.9272	9278	9285	9291	9298	9304	9311	9317	9323	9330
69	.9336	9342	9348	9354	9361	9367	9373	9379	9385	9391
70	.9397	9403	9409	9415	9421	9426	9432	9438	9444	9449
71	.9455	9461	9466	9472	9478	9483	9489	9494	9500	9505
72	.9511	9516	9521	9527	9532	9537	9542	9548	9553	9558
73	.9563	9568	9573	9578	9583	9588	9593	9598	9603	9608
74	.9613	9617	9622	9627	9632	9636	9641	9646	9650	9655
75	.9659	9664	9668	9673	9677	9681	9686	9690	9694	9699
76	.9703	9707	9711	9715	9720	9724	9728	9732	9736	9740
77	.9744	9748	9751	9755	9759	9763	9767	9770	9774	9778
78	.9781	9785	9789	9792	9796	9799	9803	9806	9810	9813
79	.9816	9820	9823	9826	9829	9833	9836	9839	9842	9845
80	.9848	9851	9854	9857	9860	9863	9866	9869	9871	9874
81	.9877	9880	9882	9885	9888	9890	9893	9895	9898	9900
82	.9903	9905	9907	9910	9912	9914	9917	9919	9921	9923
83	.9925	9928	9930	9932	9934	9936	9938	9940	9942	9943
84	.9945	9947	9949	9951	9952	9954	9956	9957	9959	9960
85	.9962	9963	9965	9966	9968	9969	9971	9972	9973	9974
86	.9976	9977	9978	9979	9980	9981	9982	9983	9984	9985
87	.9986	9987	9988	9989	9990	9990	9991	9992	9993	9993
88	.9994	9995	9995	9996	9996	9997	9997	9997	9998	9998
89	.9998	9999	9999	9999	9999	1.0000	1.0000	1.0000	1.0000	1.0000

TABLE V.

$\cos \varphi^\circ$

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
45	.7071	7059	7046	7034	7022	7009	6997	6984	6972	6959
46	.6947	6934	6921	6909	6896	6884	6871	6858	6845	6833
47	.6820	6807	6794	6782	6769	6756	6743	6730	6717	6704
48	.6691	6678	6665	6652	6639	6626	6613	6600	6587	6574
49	.6561	6547	6534	6521	6508	6494	6481	6468	6455	6441
50	.6428	6414	6401	6388	6374	6361	6347	6334	6320	6307
51	.6293	6280	6266	6252	6239	6225	6211	6198	6184	6170
52	.6157	6143	6129	6115	6101	6088	6074	6060	6046	6032
53	.6018	6004	5990	5976	5962	5948	5934	5920	5906	5892
54	.5878	5864	5850	5835	5821	5807	5793	5779	5764	5750
55	.5736	5721	5707	5693	5678	5664	5650	5635	5621	5606
56	.5592	5577	5563	5548	5534	5519	5505	5490	5476	5461
57	.5446	5432	5417	5402	5388	5373	5358	5344	5329	5314
58	.5299	5284	5270	5255	5240	5225	5210	5195	5180	5165
59	.5150	5135	5120	5105	5090	5075	5060	5045	5030	5015
60	.5000	4985	4970	4955	4939	4924	4909	4894	4879	4863
61	.4848	4833	4818	4802	4787	4772	4756	4741	4726	4710
62	.4695	4679	4664	4648	4633	4617	4602	4586	4571	4555
63	.4540	4524	4509	4493	4478	4462	4446	4431	4415	4399
64	.4384	4368	4352	4337	4321	4305	4289	4274	4258	4242
65	.4226	4210	4195	4179	4163	4147	4131	4115	4099	4083
66	.4067	4051	4035	4019	4003	3987	3971	3955	3939	3923
67	.3907	3891	3875	3859	3843	3827	3811	3795	3778	3762
68	.3746	3730	3714	3697	3681	3665	3649	3633	3616	3600
69	.3584	3567	3551	3535	3518	3502	3486	3469	3453	3437
70	.3420	3404	3387	3371	3355	3338	3322	3305	3289	3272
71	.3256	3239	3223	3206	3190	3173	3156	3140	3123	3107
72	.3090	3074	3057	3040	3024	3007	2990	2974	2957	2940
73	.2924	2907	2890	2874	2857	2840	2823	2807	2790	2773
74	.2756	2740	2723	2706	2689	2672	2656	2639	2622	2605
75	.2588	2571	2554	2538	2521	2504	2487	2470	2453	2436
76	.2419	2402	2385	2368	2351	2334	2317	2300	2284	2267
77	.2250	2233	2215	2198	2181	2164	2147	2130	2113	2096
78	.2079	2062	2045	2028	2011	1994	1977	1959	1942	1925
79	.1908	1891	1874	1857	1840	1822	1805	1788	1771	1754
80	.1736	1719	1702	1685	1668	1650	1633	1616	1599	1582
81	.1564	1547	1530	1513	1495	1478	1461	1444	1426	1409
82	.1392	1374	1357	1340	1323	1305	1288	1271	1253	1236
83	.1219	1201	1184	1167	1149	1132	1115	1097	1080	1063
84	.1045	1028	1011	0993	0976	0958	0941	0924	0906	0889
85	.0872	0854	0837	0819	0802	0785	0767	0750	0732	0715
86	.0698	0680	0663	0645	0628	0610	0593	0576	0558	0541
87	.0523	0506	0488	0471	0454	0436	0419	0401	0384	0366
88	.0349	0332	0314	0297	0279	0262	0244	0227	0209	0192
89	.0175	0157	0140	0122	0105	0087	0070	0052	0035	0017

TABLE VI.

$\tan \varphi^\circ$

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	.0000	0017	0035	0052	0070	0087	0105	0122	0140	0157
1	.0175	0192	0209	0227	0244	0262	0279	0297	0314	0332
2	.0349	0367	0384	0402	0419	0437	0454	0472	0489	0507
3	.0524	0542	0559	0577	0594	0612	0629	0647	0664	0682
4	.0699	0717	0734	0752	0769	0787	0805	0822	0840	0857
5	.0875	0892	0910	0928	0945	0963	0981	0998	1016	1033
6	.1051	1069	1086	1104	1122	1139	1157	1175	1192	1210
7	.1228	1246	1263	1281	1299	1317	1334	1352	1370	1388
8	.1405	1423	1441	1459	1477	1495	1512	1530	1548	1566
9	.1584	1602	1620	1638	1655	1673	1691	1709	1727	1745
10	.1763	1781	1799	1817	1835	1853	1871	1890	1908	1926
11	.1944	1962	1980	1998	2016	2035	2053	2071	2089	2107
12	.2126	2144	2162	2180	2199	2217	2235	2254	2272	2290
13	.2309	2327	2345	2364	2382	2401	2419	2438	2456	2475
14	.2493	2512	2530	2549	2568	2586	2605	2623	2642	2661
15	.2679	2698	2717	2736	2754	2773	2792	2811	2830	2849
16	.2867	2886	2905	2924	2943	2962	2981	3000	3019	3038
17	.3057	3076	3096	3115	3134	3153	3172	3191	3211	3230
18	.3249	3269	3288	3307	3327	3346	3365	3385	3404	3424
19	.3443	3463	3482	3502	3522	3541	3561	3581	3600	3620
20	.3640	3659	3679	3699	3719	3739	3759	3779	3799	3819
21	.3839	3859	3879	3899	3919	3939	3959	3979	4000	4020
22	.4040	4061	4081	4101	4122	4142	4163	4183	4204	4224
23	.4245	4265	4286	4307	4327	4348	4369	4390	4411	4431
24	.4452	4473	4494	4515	4536	4557	4578	4599	4621	4642
25	.4663	4684	4706	4727	4748	4770	4791	4813	4834	4856
26	.4877	4899	4921	4942	4964	4986	5008	5029	5051	5073
27	.5095	5117	5139	5161	5184	5206	5228	5250	5272	5295
28	.5317	5340	5362	5384	5407	5430	5452	5475	5498	5520
29	.5543	5566	5589	5612	5635	5658	5681	5704	5727	5750
30	.5774	5797	5820	5844	5867	5890	5914	5938	5961	5985
31	.6009	6032	6056	6080	6104	6128	6152	6176	6200	6224
32	.6249	6273	6297	6322	6346	6371	6395	6420	6445	6469
33	.6494	6519	6544	6569	6594	6619	6644	6669	6694	6720
34	.6745	6771	6796	6822	6847	6873	6899	6924	6950	6976
35	.7002	7028	7054	7080	7107	7133	7159	7186	7212	7239
36	.7265	7292	7319	7346	7373	7400	7427	7454	7481	7508
37	.7536	7563	7590	7618	7646	7673	7701	7729	7757	7785
38	.7813	7841	7869	7898	7926	7954	7983	8012	8040	8069
39	.8098	8127	8156	8185	8214	8243	8273	8302	8332	8361
40	.8391	8421	8451	8481	8511	8541	8571	8601	8632	8662
41	.8693	8724	8754	8785	8816	8847	8878	8910	8941	8972
42	.9004	9036	9067	9099	9131	9163	9195	9228	9260	9293
43	.9325	9358	9391	9424	9457	9490	9523	9556	9590	9623
44	.9657	9691	9725	9759	9793	9827	9861	9896	9930	9965

TABLE VI.

$\tan \varphi°$

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
45	1.0000	0035	0070	0105	0141	0176	0212	0247	0283	0319
46	1.0355	0392	0428	0464	0501	0538	0575	0612	0649	0686
47	1.0724	0761	0799	0837	0875	0913	0951	0990	1028	1067
48	1.1106	1145	1184	1224	1263	1303	1343	1383	1423	1463
49	1.1504	1544	1585	1626	1667	1708	1750	1792	1833	1875
50	1.1918	1960	2002	2045	2088	2131	2174	2218	2261	2305
51	1.2349	2393	2437	2482	2527	2572	2617	2662	2708	2753
52	1.2799	2846	2892	2938	2985	3032	3079	3127	3175	3222
53	1.3270	3319	3367	3416	3465	3514	3564	3613	3663	3713
54	1.3764	3814	3865	3916	3968	4019	4071	4124	4176	4229
55	1.4281	4335	4388	4442	4496	4550	4605	4659	4715	4770
56	1.4826	4882	4938	4994	5051	5108	5166	5224	5282	5340
57	1.5399	5458	5517	5577	5637	5697	5757	5818	5880	5941
58	1.6003	6066	6128	6191	6255	6319	6383	6447	6512	6577
59	1.6643	6709	6775	6842	6909	6977	7045	7113	7182	7251
60	1.7321	7391	7461	7532	7603	7675	7747	7820	7893	7966
61	1.8040	8115	8190	8265	8341	8418	8495	8572	8650	8728
62	1.8807	8887	8967	9047	9128	9210	9292	9375	9458	9542
63	1.9626	9711	9797	9883	9970	*0057	*0145	*0233	*0323	*0413
64	2.0503	0594	0686	0778	0872	0965	1060	1155	1251	1348
65	2.1445	1543	1642	1742	1842	1943	2045	2148	2251	2355
66	2.2460	2566	2673	2781	2889	2998	3109	3220	3332	3445
67	2.3559	3673	3789	3906	4023	4142	4262	4383	4504	4627
68	2.4751	4876	5002	5129	5257	5386	5517	5649	5782	5916
69	2.6051	6187	6325	6464	6605	6746	6889	7034	7129	7326
70	2.7475	7625	7776	7929	8083	8239	8397	8556	8716	8878
71	2.9042	9208	9375	9544	9714	9887	*0061	*0237	*0415	*0595
72	3.0777	0961	1146	1334	1524	1716	1910	2106	2305	2506
73	3.2709	2914	3122	3332	3544	3759	3977	4197	4420	4646
74	3.4874	5105	5339	5576	5816	6059	6305	6554	6806	7062
75	3.7321	7583	7848	8118	8391	8667	8947	9232	9520	9812
76	4.0108	0408	0713	1022	1335	1653	1976	2303	2635	2972
77	4.3315	3662	4015	4374	4737	5107	5483	5864	6252	6646
78	4.7046	7453	7867	8288	8716	9152	9594	*0045	*0504	*0970
79	5.1446	1929	2422	2924	3435	3955	4486	5026	5578	6140
80	5.6713	7297	7894	8502	9124	9758	*0405	*1066	*1742	*2432
81	6.3138	3859	4596	5350	6122	6912	7720	8548	9395	*0264
82	7.1154	2066	3002	3962	4947	5958	6996	8062	9158	*0285
83	8.1443	2636	3863	5126	6427	7769	9152	*0579	*2052	*3572
84	9.5144	9.677	9.845	10.02	10.20	10.39	10.58	10.78	10.99	11.20
85	11.43	11.66	11.91	12.16	12.43	12.71	13.00	13.30	13.62	13.95
86	14.30	14.67	15.06	15.46	15.89	16.35	16.83	17.34	17.89	18.46
87	19.08	19.74	20.45	21.20	22.02	22.90	23.86	24.90	26.03	27.27
88	28.64	30.14	31.82	33.69	35.80	38.19	40.92	44.07	47.74	52.08
89	57.29	63.66	71.62	81.85	95.49	114.6	143.2	191.0	286.5	573.0

TABLE VII. log sin φ°

φ	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	-∞	7.2419	5429	7190	8439	9408	*0200	*0870	*1450	*1961
1	8.2419	2832	3210	3558	3880	4179	4459	4723	4971	5206
2	8.5428	5640	5842	6035	6220	6397	6567	6731	6889	7041
3	8.7188	7330	7468	7602	7731	7857	7979	8098	8213	8326
4	8.8436	8543	8647	8749	8849	8946	9042	9135	9226	9315
5	8.9403	9489	9573	9655	9736	9816	9894	9970	*0046	*0120
6	9.0192	0264	0334	0403	0472	0539	0605	0670	0734	0797
7	9.0859	0920	0981	1040	1099	1157	1214	1271	1326	1381
8	9.1436	1489	1542	1594	1646	1697	1747	1797	1847	1895
9	9.1943	1991	2038	2085	2131	2176	2221	2266	2310	2353
10	9.2397	2439	2482	2524	2565	2606	2647	2687	2727	2767
11	9.2806	2845	2883	2921	2959	2997	3034	3070	3107	3143
12	9.3179	3214	3250	3284	3319	3353	3387	3421	3455	3488
13	9.3521	3554	3586	3618	3650	3682	3713	3745	3775	3806
14	9.3837	3867	3897	3927	3957	3986	4015	4044	4073	4102
15	9.4130	4158	4186	4214	4242	4269	4296	4323	4350	4377
16	9.4403	4430	4456	4482	4508	4533	4559	4584	4609	4634
17	9.4659	4684	4709	4733	4757	4781	4805	4829	4853	4876
18	9.4900	4923	4946	4969	4992	5015	5037	5060	5082	5104
19	9.5126	5148	5170	5192	5213	5235	5256	5278	5299	5320
20	9.5341	5361	5382	5402	5423	5443	5463	5484	5504	5523
21	9.5543	5563	5583	5602	5621	5641	5660	5679	5698	5717
22	9.5736	5754	5773	5792	5810	5828	5847	5865	5883	5901
23	9.5919	5937	5954	5972	5990	6007	6024	6042	6059	6076
24	9.6093	6110	6127	6144	6161	6177	6194	6210	6227	6243
25	9.6259	6276	6292	6308	6324	6340	6356	6371	6387	6403
26	9.6418	6434	6449	6465	6480	6495	6510	6526	6541	6556
27	9.6570	6585	6600	6615	6629	6644	6659	6673	6687	6702
28	9.6716	6730	6744	6759	6773	6787	6801	6814	6828	6842
29	9.6856	6869	6883	6896	6910	6923	6937	6950	6963	6977
30	9.6990	7003	7016	7029	7042	7055	7068	7080	7093	7106
31	9.7118	7131	7144	7156	7168	7181	7193	7205	7218	7230
32	9.7242	7254	7266	7278	7290	7302	7314	7326	7338	7349
33	9.7361	7373	7384	7396	7407	7419	7430	7442	7453	7464
34	9.7476	7487	7498	7509	7520	7531	7542	7553	7564	7575
35	9.7586	7597	7607	7618	7629	7640	7650	7661	7671	7682
36	9.7692	7703	7713	7723	7734	7744	7754	7764	7774	7785
37	9.7795	7805	7815	7825	7835	7844	7854	7864	7874	7884
38	9.7893	7903	7913	7922	7932	7941	7951	7960	7970	7979
39	9.7989	7998	8007	8017	8026	8035	8044	8053	8063	8072
40	9.8081	8090	8099	8108	8117	8125	8134	8143	8152	8161
41	9.8169	8178	8187	8195	8204	8213	8221	8230	8238	8247
42	9.8255	8264	8272	8280	8289	8297	8305	8313	8322	8330
43	9.8338	8346	8354	8362	8370	8378	8386	8394	8402	8410
44	9.8418	8426	8433	8441	8449	8457	8464	8472	8480	8487

TABLE VII.

log cos φ°

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	0.0000	0000	0000	0000	0000	0000	0000	0000	0000	*9999
1	9.9999	9999	9999	9999	9999	9999	9998	9998	9998	9998
2	9.9997	9997	9997	9996	9996	9996	9996	9995	9995	9994
3	9.9994	9994	9993	9993	9992	9992	9991	9991	9990	9990
4	9.9989	9989	9988	9988	9987	9987	9986	9985	9985	9984
5	9.9983	9983	9982	9981	9981	9980	9979	9978	9978	9977
6	9.9976	9975	9975	9974	9973	9972	9971	9970	9969	9968
7	9.9968	9967	9966	9965	9964	9963	9962	9961	9960	9959
8	9.9958	9956	9955	9954	9953	9952	9951	9950	9949	9947
9	9.9946	9945	9944	9943	9941	9940	9939	9937	9936	9935
10	9.9934	9932	9931	9929	9928	9927	9925	9924	9922	9921
11	9.9919	9918	9916	9915	9913	9912	9910	9909	9907	9906
12	9.9904	9902	9901	9899	9897	9896	9894	9892	9891	9889
13	9.9887	9885	9884	9882	9880	9878	9876	9875	9873	9871
14	9.9869	9867	9865	9863	9861	9859	9857	9855	9853	9851
15	9.9849	9847	9845	9843	9841	9839	9837	9835	9833	9831
16	9.9828	9826	9824	9822	9820	9817	9815	9813	9811	9808
17	9.9806	9804	9801	9799	9797	9794	9792	9789	9787	9785
18	9.9782	9780	9777	9775	9772	9770	9767	9764	9762	9759
19	9.9757	9754	9751	9749	9746	9743	9741	9738	9735	9733
20	9.9730	9727	9724	9722	9719	9716	9713	9710	9707	9704
21	9.9702	9699	9696	9693	9690	9687	9684	9681	9678	9675
22	9.9672	9669	9666	9662	9659	9656	9653	9650	9647	9643
23	9.9640	9637	9634	9631	9627	9624	9621	9617	9614	9611
24	9.9607	9604	9601	9597	9594	9590	9587	9583	9580	9576
25	9.9573	9569	9566	9562	9558	9555	9551	9548	9544	9540
26	9.9537	9533	9529	9525	9522	9518	9514	9510	9506	9503
27	9.9499	9495	9491	9487	9483	9479	9475	9471	9467	9463
28	9.9459	9455	9451	9447	9443	9439	9435	9431	9427	9422
29	9.9418	9414	9410	9406	9401	9397	9393	9388	9384	9380
30	9.9375	9371	9367	9362	9358	9353	9349	9344	9340	9335
31	9.9331	9326	9322	9317	9312	9308	9303	9298	9294	9289
32	9.9284	9279	9275	9270	9265	9260	9255	9251	9246	9241
33	9.9236	9231	9226	9221	9216	9211	9206	9201	9196	9191
34	9.9186	9181	9175	9170	9165	9160	9155	9149	9144	9139
35	9.9134	9128	9123	9118	9112	9107	9101	9096	9091	9085
36	9.9080	9074	9069	9063	9057	9052	9046	9041	9035	9029
37	9.9023	9018	9012	9006	9000	8995	8989	8983	8977	8971
38	9.8965	8959	8953	8947	8941	8935	8929	8923	8917	8911
39	9.8905	8899	8893	8887	8880	8874	8868	8862	8855	8849
40	9.8843	8836	8830	8823	8817	8810	8804	8797	8791	8784
41	9.8778	8771	8765	8758	8751	8745	8738	8731	8724	8718
42	9.8711	8704	8697	8690	8683	8676	8669	8662	8655	8648
43	9.8641	8634	8627	8620	8613	8606	8598	8591	8584	8577
44	9.8569	8562	8555	8547	8540	8532	8525	8517	8510	8502

TABLE VII. log sin φ°

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
45	9.8495	8502	8510	8517	8525	8532	8540	8547	8555	8562
46	9.8569	8577	8584	8591	8598	8606	8613	8620	8627	8634
47	9.8641	8648	8655	8662	8669	8676	8683	8690	8697	8704
48	9.8711	8718	8724	8731	8738	8745	8751	8758	8765	8771
49	9.8778	8784	8791	8797	8804	8810	8817	8823	8830	8836
50	9.8843	8849	8855	8862	8868	8874	8880	8887	8893	8899
51	9.8905	8911	8917	8923	8929	8935	8941	8947	8953	8959
52	9.8965	8971	8977	8983	8989	8995	9000	9006	9012	9018
53	9.9023	9029	9035	9041	9046	9052	9057	9063	9069	9074
54	9.9080	9085	9091	9096	9101	9107	9112	9118	9123	9128
55	9.9134	9139	9144	9149	9155	9160	9165	9170	9175	9181
56	9.9186	9191	9196	9201	9206	9211	9216	9221	9226	9231
57	9.9236	9241	9246	9251	9255	9260	9265	9270	9275	9279
58	9.9284	9289	9294	9298	9303	9308	9312	9317	9322	9326
59	9.9331	9335	9340	9344	9349	9353	9358	9362	9367	9371
60	9.9375	9380	9384	9388	9393	9397	9401	9406	9410	9414
61	9.9418	9422	9427	9431	9435	9439	9443	9447	9451	9455
62	9.9459	9463	9467	9471	9475	9479	9483	9487	9491	9495
63	9.9499	9503	9506	9510	9514	9518	9522	9525	9529	9533
64	9.9537	9540	9544	9548	9551	9555	9558	9562	9566	9569
65	9.9573	9576	9580	9583	9587	9590	9594	9597	9601	9604
66	9.9607	9611	9614	9617	9621	9624	9627	9631	9634	9637
67	9.9640	9643	9647	9650	9653	9656	9659	9662	9666	9669
68	9.9672	9675	9678	9681	9684	9687	9690	9693	9696	9699
69	9.9702	9704	9707	9710	9713	9716	9719	9722	9724	9727
70	9.9730	9733	9735	9738	9741	9743	9746	9749	9751	9754
71	9.9757	9759	9762	9764	9767	9770	9772	9775	9777	9780
72	9.9782	9785	9787	9789	9792	9794	9797	9799	9801	9804
73	9.9806	9808	9811	9813	9815	9817	9820	9822	9824	9826
74	9.9828	9831	9833	9835	9837	9839	9841	9843	9845	9847
75	9.9849	9851	9853	9855	9857	9859	9861	9863	9865	9867
76	9.9869	9871	9873	9875	9876	9878	9880	9882	9884	9885
77	9.9887	9889	9891	9892	9894	9896	9897	9899	9901	9902
78	9.9904	9906	9907	9909	9910	9912	9913	9915	9916	9918
79	9.9919	9921	9922	9924	9925	9927	9928	9929	9931	9932
80	9.9934	9935	9936	9937	9939	9940	9941	9943	9944	9945
81	9.9946	9947	9949	9950	9951	9952	9953	9954	9955	9956
82	9.9958	9959	9960	9961	9962	9963	9964	9965	9966	9967
83	9.9968	9968	9969	9970	9971	9972	9973	9974	9975	9975
84	9.9976	9977	9978	9978	9979	9980	9981	9981	9982	9983
85	9.9983	9984	9985	9985	9986	9987	9987	9988	9988	9989
86	9.9989	9990	9990	9991	9991	9992	9992	9993	9993	9994
87	9.9994	9994	9995	9995	9996	9996	9996	9996	9997	9997
88	9.9997	9998	9998	9998	9998	9999	9999	9999	9999	9999
89	9.9999	9999	*0000	*0000	*0000	*0000	*0000	*0000	*0000	*0000

TABLE VII.

log cos $\varphi°$

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
45	9.8495	8487	8480	8472	8464	8457	8449	8441	8433	8426
46	9.8418	8410	8402	8394	8386	8378	8370	8362	8354	8346
47	9.8338	8330	8322	8313	8305	8297	8289	8280	8272	8264
48	9.8255	8247	8238	8230	8221	8213	8204	8195	8187	8178
49	9.8169	8161	8152	8143	8134	8125	8117	8108	8099	8090
50	9.8081	8072	8063	8053	8044	8035	8026	8017	8007	7998
51	9.7989	7979	7970	7960	7951	7941	7932	7922	7913	7903
52	9.7893	7884	7874	7864	7854	7844	7835	7825	7815	7805
53	9.7795	7785	7774	7764	7754	7744	7734	7723	7713	7703
54	9.7692	7682	7671	7661	7650	7640	7629	7618	7607	7597
55	9.7586	7575	7564	7553	7542	7531	7520	7509	7498	7487
56	9.7476	7464	7453	7442	7430	7419	7407	7396	7384	7373
57	9.7361	7349	7338	7326	7314	7302	7290	7278	7266	7254
58	9.7242	7230	7218	7205	7193	7181	7168	7156	7144	7131
59	9.7118	7106	7093	7080	7068	7055	7042	7029	7016	7003
60	9.6990	6977	6963	6950	6937	6923	6910	6896	6883	6869
61	9.6856	6842	6828	6814	6801	6787	6773	6759	6744	6730
62	9.6716	6702	6687	6673	6659	6644	6629	6615	6600	6585
63	9.6570	6556	6541	6526	6510	6495	6480	6465	6449	6434
64	9.6418	6403	6387	6371	6356	6340	6324	6308	6292	6276
65	9.6259	6243	6227	6210	6194	6177	6161	6144	6127	6110
66	9.6093	6076	6059	6042	6024	6007	5990	5972	5954	5937
67	9.5919	5901	5883	5865	5847	5828	5810	5792	5773	5754
68	9.5736	5717	5698	5679	5660	5641	5621	5602	5583	5563
69	9.5543	5523	5504	5484	5463	5443	5423	5402	5382	5361
70	9.5341	5320	5299	5278	5256	5235	5213	5192	5170	5148
71	9.5126	5104	5082	5060	5037	5015	4992	4969	4946	4923
72	9.4900	4876	4853	4829	4805	4781	4757	4733	4709	4684
73	9.4659	4634	4609	4584	4559	4533	4508	4482	4456	4430
74	9.4403	4377	4350	4323	4296	4269	4242	4214	4186	4158
75	9.4130	4102	4073	4044	4015	3986	3957	3927	3897	3867
76	9.3837	3806	3775	3745	3713	3682	3650	3618	3586	3554
77	9.3521	3488	3455	3421	3387	3353	3319	3284	3250	3214
78	9.3179	3143	3107	3070	3034	2997	2959	2921	2883	2845
79	9.2806	2767	2727	2687	2647	2606	2565	2524	2482	2439
80	9.2397	2353	2310	2266	2221	2176	2131	2085	2038	1991
81	9.1943	1895	1847	1797	1747	1697	1646	1594	1542	1489
82	9.1436	1381	1326	1271	1214	1157	1099	1040	0981	0920
83	9.0859	0797	0734	0670	0605	0539	0472	0403	0334	0264
84	9.0192	0120	0046	*9970	*9894	*9816	*9736	*9655	*9573	*9489
85	8.9403	9315	9226	9135	9042	8946	8849	8749	8647	8543
86	8.8436	8326	8213	8098	7979	7857	7731	7602	7468	7330
87	8.7188	7041	6889	6731	6567	6397	6220	6035	5842	5640
88	8.5428	5206	4971	4723	4459	4179	3880	3558	3210	2832
89	8.2419	1961	1450	0870	0200	*9408	*8439	*7190	*5429	*2419

TABLE VIII. log tan φ°

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	$-\infty$	7.2419	5429	7190	8439	9409	*0200	*0870	*1450	*1962
1	8.2419	2833	3211	3559	3881	4181	4461	4725	4973	5208
2	8.5431	5643	5845	6038	6223	6401	6571	6736	6894	7046
3	8.7194	7337	7475	7609	7739	7865	7988	8107	8223	8336
4	8.8446	8554	8659	8762	8862	8960	9056	9150	9241	9331
5	8.9420	9506	9591	9674	9756	9836	9915	9992	*0068	*0143
6	9.0216	0289	0360	0430	0499	0567	0633	0699	0764	0828
7	9.0891	0954	1015	1076	1135	1194	1252	1310	1367	1423
8	9.1478	1533	1587	1640	1693	1745	1797	1848	1898	1948
9	9.1997	2046	2094	2142	2189	2236	2282	2328	2374	2419
10	9.2463	2507	2551	2594	2637	2680	2722	2764	2805	2846
11	9.2887	2927	2967	3006	3046	3085	3123	3162	3200	3237
12	9.3275	3312	3349	3385	3422	3458	3493	3529	3564	3599
13	9.3634	3668	3702	3736	3770	3804	3837	3870	3903	3935
14	9.3968	4000	4032	4064	4095	4127	4158	4189	4220	4250
15	9.4281	4311	4341	4371	4400	4430	4459	4488	4517	4546
16	9.4575	4603	4632	4660	4688	4716	4744	4771	4799	4826
17	9.4853	4880	4907	4934	4961	4987	5014	5040	5066	5092
18	9.5118	5143	5169	5195	5220	5245	5270	5295	5320	5345
19	9.5370	5394	5419	5443	5467	5491	5516	5539	5563	5587
20	9.5611	5634	5658	5681	5704	5727	5750	5773	5796	5819
21	9.5842	5864	5887	5909	5932	5954	5976	5998	6020	6042
22	9.6064	6086	6108	6129	6151	6172	6194	6215	6236	6257
23	9.6279	6300	6321	6341	6362	6383	6404	6424	6445	6465
24	9.6486	6506	6527	6547	6567	6587	6607	6627	6647	6667
25	9.6687	6706	6726	6746	6765	6785	6804	6824	6843	6863
26	9.6882	6901	6920	6939	6958	6977	6996	7015	7034	7053
27	9.7072	7090	7109	7128	7146	7165	7183	7202	7220	7238
28	9.7257	7275	7293	7311	7330	7348	7366	7384	7402	7420
29	9.7438	7455	7473	7491	7509	7526	7544	7562	7579	7597
30	9.7614	7632	7649	7667	7684	7701	7719	7736	7753	7771
31	9.7788	7805	7822	7839	7856	7873	7890	7907	7924	7941
32	9.7958	7975	7992	8008	8025	8042	8059	8075	8092	8109
33	9.8125	8142	8158	8175	8191	8208	8224	8241	8257	8274
34	9.8290	8306	8323	8339	8355	8371	8388	8404	8420	8436
35	9.8452	8468	8484	8501	8517	8533	8549	8565	8581	8597
36	9.8613	8629	8644	8660	8676	8692	8708	8724	8740	8755
37	9.8771	8787	8803	8818	8834	8850	8865	8881	8897	8912
38	9.8928	8944	8959	8975	8990	9006	9022	9037	9053	9068
39	9.9084	9099	9115	9130	9146	9161	9176	9192	9207	9223
40	9.9238	9254	9269	9284	9300	9315	9330	9346	9361	9376
41	9.9392	9407	9422	9438	9453	9468	9483	9499	9514	9529
42	9.9544	9560	9575	9590	9605	9621	9636	9651	9666	9681
43	9.9697	9712	9727	9742	9757	9772	9788	9803	9818	9833
44	9.9848	9864	9879	9894	9909	9924	9939	9955	9970	9985

TABLE VIII. log tan φ°

φ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
45	0.0000	0015	0030	0045	0061	0076	0091	0106	0121	0136
46	0.0152	0167	0182	0197	0212	0228	0243	0258	0273	0288
47	0.0303	0319	0334	0349	0364	0379	0395	0410	0425	0440
48	0.0456	0471	0486	0501	0517	0532	0547	0562	0578	0593
49	0.0608	0624	0639	0654	0670	0685	0700	0716	0731	0746
50	0.0762	0777	0793	0808	0824	0839	0854	0870	0885	0901
51	0.0916	0932	0947	0963	0978	0994	1010	1025	1041	1056
52	0.1072	1088	1103	1119	1135	1150	1166	1182	1197	1213
53	0.1229	1245	1260	1276	1292	1308	1324	1340	1356	1371
54	0.1387	1403	1419	1435	1451	1467	1483	1499	1516	1532
55	0.1548	1564	1580	1596	1612	1629	1645	1661	1677	1694
56	0.1710	1726	1743	1759	1776	1792	1809	1825	1842	1858
57	0.1875	1891	1908	1925	1941	1958	1975	1992	2008	2025
58	0.2042	2059	2076	2093	2110	2127	2144	2161	2178	2195
59	0.2212	2229	2247	2264	2281	2299	2316	2333	2351	2368
60	0.2386	2403	2421	2438	2456	2474	2491	2509	2527	2545
61	0.2562	2580	2598	2616	2634	2652	2670	2689	2707	2725
62	0.2743	2762	2780	2798	2817	2835	2854	2872	2891	2910
63	0.2928	2947	2966	2985	3004	3023	3042	3061	3080	3099
64	0.3118	3137	3157	3176	3196	3215	3235	3254	3274	3294
65	0.3313	3333	3353	3373	3393	3413	3433	3453	3473	3494
66	0.3514	3535	3555	3576	3596	3617	3638	3659	3679	3700
67	0.3721	3743	3764	3785	3806	3828	3849	3871	3892	3914
68	0.3936	3958	3980	4002	4024	4046	4068	4091	4113	4136
69	0.4158	4181	4204	4227	4250	4273	4296	4319	4342	4366
70	0.4389	4413	4437	4461	4484	4509	4533	4557	4581	4606
71	0.4630	4655	4680	4705	4730	4755	4780	4805	4831	4857
72	0.4882	4908	4934	4960	4986	5013	5039	5066	5093	5120
73	0.5147	5174	5201	5229	5256	5284	5312	5340	5368	5397
74	0.5425	5454	5483	5512	5541	5570	5600	5629	5659	5689
75	0.5719	5750	5780	5811	5842	5873	5905	5936	5986	6000
76	0.6032	6065	6097	6130	6163	6196	6230	6264	6298	6332
77	0.6366	6401	6436	6471	6507	6542	6578	6615	6651	6688
78	0.6725	6763	6800	6838	6877	6915	6954	6994	7033	7073
79	0.7113	7154	7195	7236	7278	7320	7363	7406	7449	7493
80	0.7537	7581	7626	7672	7718	7764	7811	7858	7906	7954
81	0.8003	8052	8102	8152	8203	8255	8307	8360	8413	8467
82	0.8522	8577	8633	8690	8748	8806	8865	8924	8985	9046
83	0.9109	9172	9236	9301	9367	9433	9501	9570	9640	9711
84	0.9784	9857	9932	*0008	*0085	*0164	*0244	*0326	*0409	*0494
85	1.0580	0669	0759	0850	0944	1040	1138	1238	1341	1446
86	1.1554	1664	1777	1893	2012	2135	2261	2391	2525	2663
87	1.2806	2954	3106	3264	3429	3599	3777	3962	4155	4357
88	1.4569	4792	5027	5275	5539	5819	6119	6441	6789	7167
89	1.7581	8038	8550	9130	9800	*0591	*1561	*2810	*4571	*7581

TABLE IX. log sin φ°

φ	0	1	2	3	4	5	6	7	8	9
0.0	$-\infty$	6.2419	5429	7190	8439	9408	*0200	*0870	*1450	*1961
0.1	7.2419	2833	3211	3558	3880	4180	4460	4723	4971	5206
0.2	7.5429	5641	5843	6036	6221	6398	6568	6732	6890	7043
0.3	7.7190	7332	7470	7604	7734	7859	7982	8101	8217	8329
0.4	7.8439	8547	8651	8753	8853	8951	9046	9140	9231	9321
0.5	7.9408	9494	9579	9661	9743	9822	9901	9977	*0053	*0127
0.6	8.0200	0272	0343	0412	0480	0548	0614	0679	0644	0807
0.7	8.0870	0931	0992	1052	1111	1169	1227	1284	1340	1395
0.8	8.1450	1503	1557	1609	1661	1713	1764	1814	1863	1912
0.9	8.1961	2009	2056	2103	2150	2196	2241	2286	2331	2375
1.0	8.2419	2462	2505	2547	2589	2630	2672	2712	2753	2793
1.1	8.2832	2872	2911	2949	2988	3025	3063	3100	3137	3174
1.2	8.3210	3246	3282	3317	3353	3388	3422	3456	3491	3524
1.3	8.3558	3591	3624	3657	3689	3722	3754	3786	3817	3848
1.4	8.3880	3911	3941	3972	4002	4032	4062	4091	4121	4150
1.5	8.4179	4208	4237	4265	4293	4322	4349	4377	4405	4432
1.6	8.4459	4486	4513	4540	4567	4593	4619	4645	4671	4697
1.7	8.4723	4748	4773	4799	4824	4848	4873	4898	4922	4947
1.8	8.4971	4995	5019	5043	5066	5090	5113	5136	5160	5183
1.9	8.5206	5228	5251	5274	5296	5318	5340	5363	5385	5406
2.0	8.5428	5450	5471	5493	5514	5535	5557	5578	5598	5619
2.1	8.5640	5661	5681	5702	5722	5742	5762	5782	5802	5822
2.2	8.5842	5862	5881	5901	5920	5939	5959	5978	5997	6016
2.3	8.6035	6054	6072	6091	6110	6128	6147	6165	6183	6201
2.4	8.6220	6238	6256	6274	6291	6309	6327	6344	6362	6379
2.5	8.6397	6414	6431	6449	6466	6483	6500	6517	6534	6500
2.6	8.6567	6584	6600	6617	6633	6650	6666	6682	6699	6715
2.7	8.6731	6747	6763	6779	6795	6810	6826	6842	6858	6873
2.8	8.6889	6904	6920	6935	6950	6965	6981	6996	7011	7026
2.9	8.7041	7056	7071	7086	7100	7115	7130	7144	7159	7174
3.0	8.7188	7202	7217	7231	7245	7260	7274	7288	7302	7316
3.1	8.7330	7344	7358	7372	7386	7400	7413	7427	7441	7454
3.2	8.7468	7482	7495	7508	7522	7535	7549	7562	7575	7588
3.3	8.7602	7615	7628	7641	7654	7667	7680	7693	7705	7718
3.4	8.7731	7744	7756	7769	7782	7794	7807	7819	7832	7844
3.5	8.7857	7869	7881	7894	7906	7918	7930	7943	7955	7967
3.6	8.7979	7991	8003	8015	8027	8039	8051	8062	8074	8086
3.7	8.8098	8109	8121	8133	8144	8156	8168	8179	8191	8202
3.8	8.8213	8225	8236	8248	8259	8270	8281	8293	8304	8315
3.9	8.8326	8337	8348	8359	8370	8381	8392	8403	8414	8425
4.0	8.8436	8447	8457	8468	8479	8490	8500	8511	9522	8532
4.1	8.8543	8553	8564	8575	8585	8595	8606	8616	8627	8637
4.2	8.8647	8658	8668	8678	8688	8699	8709	8719	8729	8739
4.3	8.8749	8759	8769	8780	8790	8799	8809	8819	8829	8839
4.4	8.8849	8859	8869	8878	8888	8898	8908	8917	8927	8937

TABLE X. log tan φ°

φ	0	1	2	3	4	5	6	7	8	9
0.0	-∞	6.2419	5429	7190	8439	9408	*0200	*0870	*1450	*1961
0.1	7.2419	2833	3211	3558	3880	4180	4460	4723	4972	5206
0.2	7.5429	5641	5843	6036	6221	6398	6569	6732	6890	7043
0.3	7.7190	7332	7470	7604	7734	7860	7982	8101	8217	8329
0.4	7.8439	8547	8651	8754	8853	8951	9046	9140	9231	9321
0.5	7.9409	9495	9579	9662	9743	9823	9901	9978	*0053	*0127
0.6	8.0200	0272	0343	0412	0481	0548	0614	0680	0644	0807
0.7	8.0870	0932	0992	1052	1111	1170	1227	1284	1340	1395
0.8	8.1450	1504	1557	1610	1662	1713	1764	1814	1864	1913
0.9	8.1962	2010	2057	2104	2150	2196	2242	2287	2331	2376
1.0	8.2419	2462	2505	2548	2590	2631	2672	2713	2754	2794
1.1	8.2833	2873	2912	2950	2988	3026	3064	3101	3138	3175
1.2	8.3211	3247	3283	3318	3354	3389	3423	3458	3492	3525
1.3	8.3559	3592	3625	3658	3691	3723	3755	3787	3818	3850
1.4	8.3881	3912	3943	3973	4003	4033	4063	4093	4122	4152
1.5	8.4181	4210	4238	4267	4295	4323	4351	4379	4406	4434
1.6	8.4461	4488	4515	4542	4568	4595	4621	4647	4673	4699
1.7	8.4725	4750	4775	4801	4826	4851	4875	4900	4924	4949
1.8	8.4973	4997	5021	5045	5068	5092	5115	5139	5162	5185
1.9	8.5208	5231	5253	5276	5298	5321	5343	5365	5387	5409
2.0	8.5431	5453	5474	5496	5517	5538	5559	5580	5601	5622
2.1	8.5643	5664	5684	5705	5725	5745	5765	5785	5805	5825
2.2	8.5845	5865	5884	5904	5923	5943	5962	5981	6000	6019
2.3	8.6038	6057	6076	6095	6113	6132	6150	6169	6187	6205
2.4	8.6223	6242	6260	6277	6295	6313	6331	6348	6366	6384
2.5	8.6401	6418	6436	6453	6470	6487	6504	6521	6538	6555
2.6	8.6571	6588	6605	6621	6638	6654	6671	6687	6703	6719
2.7	8.6736	6752	6768	6784	6800	6815	6831	6847	6863	6878
2.8	8.6894	6909	6925	6940	6956	6971	6986	7001	7016	7031
2.9	8.7046	7061	7076	7091	7106	7121	7136	7150	7165	7179
3.0	8.7194	7208	7223	7237	7252	7266	7280	7294	7308	7323
3.1	8.7337	7351	7365	7379	7392	7406	7420	7434	7448	7461
3.2	8.7475	7488	7502	7515	7529	7542	7556	7569	7582	7596
3.3	8.7609	7622	7635	7648	7661	7674	7687	7700	7713	7726
3.4	8.7739	7751	7764	7777	7790	7802	7815	7827	7840	7852
3.5	8.7865	7877	7890	7902	7914	7927	7939	7951	7963	7975
3.6	8.7988	8000	8012	8024	8036	8048	8059	8071	8083	8095
3.7	8.8107	8119	8130	8142	8154	8165	8177	8188	8200	8212
3.8	8.8223	8234	8246	8257	8269	8280	8291	8302	8314	8325
3.9	8.8336	8347	8358	8370	8381	8392	8403	8414	8425	8436
4.0	8.8446	8457	8468	8479	8490	8501	8511	8522	8533	8543
4.1	8.8554	8565	8575	8586	8596	8607	8617	8628	8638	8649
4.2	8.8659	8669	8680	8690	8700	8711	8721	8731	8741	8751
4.3	8.8762	8772	8782	8792	8802	8812	8822	8832	8842	8852
4.4	8.8862	8872	8882	8891	8901	8911	8921	8931	8940	8950

TABLE XI.

$\sin x$

x	0	1	2	3	4	5	6	7	8	9
.00	.0000	0010	0020	0030	0040	0050	0060	0070	0080	0090
.01	.0100	0110	0120	0130	0140	0150	0160	0170	0180	0190
.02	.0200	0210	0220	0230	0240	0250	0260	0270	0280	0290
.03	.0300	0310	0320	0330	0340	0350	0360	0370	0380	0390
.04	.0400	0410	0420	0430	0440	0450	0460	0470	0480	0490
.05	.0500	0510	0520	0530	0540	0550	0560	0570	0580	0590
.06	.0600	0610	0620	0630	0640	0650	0660	0669	0679	0689
.07	.0699	0709	0719	0729	0739	0749	0759	0769	0779	0789
.08	.0799	0809	0819	0829	0839	0849	0859	0869	0879	0889
.09	.0899	0909	0919	0929	0939	0949	0959	0968	0978	0988
.10	.0998	1008	1018	1028	1038	1048	1058	1068	1078	1088
.11	.1098	1108	1118	1128	1138	1147	1157	1167	1177	1187
.12	.1197	1207	1217	1227	1237	1247	1257	1267	1277	1286
.13	.1296	1306	1316	1326	1336	1346	1356	1366	1376	1386
.14	.1395	1405	1415	1425	1435	1445	1455	1465	1475	1484
.15	.1494	1504	1514	1524	1534	1544	1554	1564	1573	1583
.16	.1593	1603	1613	1623	1633	1643	1652	1662	1672	1682
.17	.1692	1702	1712	1721	1731	1741	1751	1761	1771	1780
.18	.1790	1800	1810	1820	1830	1839	1849	1859	1869	1879
.19	.1889	1898	1908	1918	1928	1938	1947	1957	1967	1977
.20	.1987	1996	2006	2016	2026	2036	2045	2055	2065	2075
.21	.2085	2094	2104	2114	2124	2133	2143	2153	2163	2173
.22	.2182	2192	2202	2212	2221	2231	2241	2251	2260	2270
.23	.2280	2290	2299	2309	2319	2328	2338	2348	2358	2367
.24	.2377	2387	2396	2406	2416	2426	2435	2445	2455	2464
.25	.2474	2484	2493	2503	2513	2522	2532	2542	2551	2561
.26	.2571	2580	2590	2600	2609	2619	2629	2638	2648	2658
.27	.2667	2677	2687	2696	2706	2715	2725	2735	2744	2754
.28	.2764	2773	2783	2792	2802	2812	2821	2831	2840	2850
.29	.2860	2869	2879	2888	2898	2907	2917	2927	2936	2946
.30	.2955	2965	2974	2984	2993	3003	3012	3022	3032	3041
.31	.3051	3060	3070	3079	3089	3098	3108	3117	3127	3136
.32	.3146	3155	3165	3174	3184	3193	3203	3212	3222	3231
.33	.3240	3250	3259	3269	3278	3288	3297	3307	3316	3325
.34	.3335	3344	3354	3363	3373	3382	3391	3401	3410	3420
.35	.3429	3438	3448	3457	3467	3476	3485	3495	3504	3513
.36	.3523	3532	3541	3551	3560	3569	3579	3588	3598	3607
.37	.3616	3625	3635	3644	3653	3663	3672	3681	3691	3700
.38	.3709	3718	3728	3737	3746	3756	3765	3774	3783	3793
.39	.3802	3811	3820	3830	3839	3848	3857	3867	3876	3885
.40	.3894	3903	3913	3922	3931	3940	3949	3959	3968	3977
.41	.3986	3995	4004	4014	4023	4032	4041	4050	4059	4068
.42	.4078	4087	4096	4105	4114	4123	4132	4141	4151	4160
.43	.4169	4178	4187	4196	4205	4214	4223	4232	4241	4250
.44	.4259	4268	4277	4287	4296	4305	4314	4323	4332	4341
.45	.4350	4359	4368	4377	4386	4395	4404	4413	4422	4431
.46	.4439	4448	4457	4466	4475	4484	4493	4502	4511	4520
.47	.4529	4538	4547	4556	4564	4573	4582	4591	4600	4609
.48	.4618	4627	4636	4644	4653	4662	4671	4680	4689	4697
.49	.4706	4715	4724	4733	4742	4750	4759	4768	4777	4785

n	1	2	3	4	5
$n\pi$	3.1416	6.2832	9.4248	12.5664	15.7080

TABLE XI.

cos x

x	0	1	2	3	4	5	6	7	8	9
.00	1.0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
.01	1.0000	*9999	*9999	*9999	*9999	*9999	*9999	*9999	*9998	*9998
.02	0.9998	9998	9998	9997	9997	9997	9997	9996	9996	9996
.03	.9996	9995	9995	9995	9994	9994	9994	9993	9993	9992
.04	.9992	9992	9991	9991	9990	9990	9989	9989	9988	9988
.05	.9988	9987	9986	9986	9985	9985	9984	9984	9983	9983
.06	.9982	9981	9981	9980	9980	9979	9978	9978	9977	9976
.07	.9976	9975	9974	9973	9973	9972	9971	9970	9970	9969
.08	.9968	9967	9966	9966	9965	9964	9963	9962	9961	9960
.09	.9960	9959	9958	9957	9956	9955	9954	9953	9952	9951
.10	.9950	9949	9948	9947	9946	9945	9944	9943	9942	9941
.11	.9940	9938	9937	9936	9935	9034	9933	9932	9930	9929
.12	.9928	9927	9926	9924	9923	9922	9921	9919	9918	9917
.13	.9916	9914	9913	9912	9910	9909	9908	9906	9905	9904
.14	.9902	9901	9899	9898	9896	9895	9894	9892	9891	9889
.15	.9888	9886	9885	9883	9882	9880	9879	9877	9875	9874
.16	.9872	9871	9869	9867	9866	9864	9863	9861	9859	9858
.17	.9856	9854	9852	9851	9849	9847	9846	9844	9842	9840
.18	.9838	9837	9835	9833	9831	9829	9828	9826	9824	9822
.19	.9820	9818	9816	9814	9812	9810	9809	9807	9805	9803
.20	.9801	9799	9797	9795	9793	9791	9789	9787	9784	9782
.21	.9780	9778	9776	9774	9772	9770	9768	9765	9763	9761
.22	.9759	9757	9755	9752	9750	9748	9746	9743	9741	9739
.23	.9737	9734	9732	9730	9727	9725	9723	9720	9718	9716
.24	.9713	9711	9709	9706	9704	9701	9699	9697	9694	9692
.25	.9689	9687	9684	9682	9679	9677	9674	9672	9669	9666
.26	.9664	9661	9659	9656	9654	9651	9648	9646	9643	9640
.27	.9638	9635	9632	9630	9627	9624	9622	9619	9616	9613
.28	.9611	9608	9605	9602	9599	9597	9594	9591	9588	9585
.29	.9582	9580	9577	9574	9571	9568	9565	9562	9559	9556
.30	.9553	9550	9547	9544	9541	9538	9535	9532	9529	9526
.31	.9523	9520	9517	9514	9511	9508	9505	9502	9499	9495
.32	.9492	9489	9486	9483	9480	9477	9473	9470	9467	9464
.33	.9460	9457	9454	9451	9447	9444	9441	9438	9434	9431
.34	.9428	9424	9421	9417	9414	9411	9407	9404	9401	9397
.35	.9394	9390	9387	9383	9380	9376	9373	9369	9366	9362
.36	.9359	9355	9352	9348	9345	9341	9338	9334	9330	9327
.37	.9323	9320	9316	9312	9309	9305	9301	9298	9294	9290
.38	.9287	9283	9279	9275	9272	9268	9264	9260	9257	9253
.39	.9249	9245	9241	9238	9234	9230	9226	9222	9218	9214
.40	.9211	9207	9203	9199	9195	9191	9187	9183	9179	9175
.41	.9171	9167	9163	9159	9155	9151	9147	9143	9139	9135
.42	.9131	9127	9123	9119	9115	9110	9106	9102	9098	9094
.43	.9090	9085	9081	9077	9073	9069	9064	9060	9056	9052
.44	.9048	9043	9039	9035	9030	9026	9022	9017	9013	9009
.45	.9004	9000	8996	8991	8987	8983	8978	8974	8969	8965
.46	.8961	8956	8952	8947	8943	8938	8934	8929	8925	8920
.47	.8916	8911	8907	8902	8897	8893	8888	8884	8879	8875
.48	.8870	8865	8861	8856	8851	8847	8842	8837	8833	8828
.49	.8823	8819	8814	8809	8804	8800	8795	8790	8785	8781

n	6	7	8	9	10
$n\pi$	18.8496	21.9912	25.1327	28.2743	31.4159

TABLE XI.

$\sin x$

x	0	1	2	3	4	5	6	7	8	9
.50	.4794	4803	4812	4821	4829	4838	4847	4856	4864	4873
.51	.4882	4890	4899	4908	4917	4925	4934	4943	4951	4960
.52	.4969	4977	4986	4995	5003	5012	5021	5029	5038	5047
.53	.5055	5064	5073	5081	5090	5098	5107	5116	5124	5133
.54	.5141	5150	5159	5167	5176	5184	5193	5201	5210	5218
.55	.5227	5235	5244	5252	5261	5269	5278	5286	5295	5303
.56	.5312	5320	5329	5337	5346	5354	5363	5371	5379	5388
.57	.5396	5405	5413	5422	5430	5438	5447	5455	5463	5472
.58	.5480	5489	5497	5505	5514	5522	5530	5539	5547	5555
.59	.5564	5572	5580	5589	5597	5605	5613	5622	5630	5638
.60	.5646	5655	5663	5671	5679	5688	5696	5704	5712	5720
.61	.5729	5737	5745	5753	5761	5770	5778	5786	5794	5802
.62	.5810	5818	5827	5835	5843	5851	5859	5867	5875	5883
.63	.5891	5900	5908	5916	5924	5932	5940	5948	5956	5964
.64	.5972	5980	5988	5996	6004	6012	6020	6028	6036	6044
.65	.6052	6060	6068	6076	6084	6092	6100	6107	6115	6123
.66	.6131	6139	6147	6155	6163	6171	6178	6186	6194	6202
.67	.6210	6218	6226	6233	6241	6249	6257	6265	6272	6280
.68	.6288	6296	6303	6311	6319	6327	6334	6342	6350	6358
.69	.6365	6373	6381	6388	6396	6404	6412	6419	6427	6435
.70	.6442	6450	6457	6465	6473	6480	6488	6496	6503	6511
.71	.6518	6526	6533	6541	6549	6556	6564	6571	6579	6586
.72	.6594	6601	6609	6616	6624	6631	6639	6646	6654	6661
.73	.6669	6676	6684	6691	6698	6706	6713	6721	6728	6735
.74	.6743	6750	6758	6765	6772	6780	6787	6794	6802	6809
.75	.6816	6824	6831	6838	6846	6853	6860	6867	6875	6882
.76	.6889	6896	6904	6911	6918	6925	6933	6940	6947	6954
.77	.6961	6969	6976	6983	6990	6997	7004	7011	7019	7026
.78	.7033	7040	7047	7054	7061	7068	7075	7082	7089	7096
.79	.7104	7111	7118	7125	7132	7139	7146	7153	7160	7167
.80	.7174	7181	7187	7194	7201	7208	7215	7222	7229	7236
.81	.7243	7250	7257	7264	7270	7277	7284	7291	7298	7305
.82	.7311	7318	7325	7332	7339	7345	7352	7359	7366	7373
.83	.7379	7386	7393	7400	7406	7413	7420	7426	7433	7440
.84	.7446	7453	7460	7466	7473	7480	7486	7493	7500	7506
.85	.7513	7519	7526	7533	7539	7546	7552	7559	7565	7572
.86	.7578	7585	7591	7598	7604	7611	7617	7624	7630	7637
.87	.7643	7650	7656	7663	7669	7675	7682	7688	7695	7701
.88	.7707	7714	7720	7726	7733	7739	7745	7752	7758	7764
.89	.7771	7777	7783	7790	7796	7802	7808	7815	7821	7827
.90	.7833	7839	7846	7852	7858	7864	7870	7877	7883	7889
.91	.7895	7901	7907	7913	7920	7926	7932	7938	7944	7950
.92	.7956	7962	7968	7974	7980	7986	7992	7998	8004	8010
.93	.8016	8022	8028	8034	8040	8046	8052	8058	8064	8070
.94	.8076	8081	8087	8093	8099	8105	8111	8117	8123	8128
.95	.8134	8140	8146	8152	8157	8163	8169	8175	8180	8186
.96	.8192	8198	8203	8209	8215	8220	8226	8232	8238	8243
.97	.8249	8255	8260	8266	8271	8277	8283	8288	8294	8299
.98	.8305	8311	8316	8322	8327	8333	8338	8344	8349	8355
.99	.8360	8366	8371	8377	8382	8388	8393	8398	8404	8409

n	1	2	3	4	5
$n\pi$	3.1416	6.2832	9.4248	12.5664	15.7080

TABLE XI. $\cos x$

x	0	1	2	3	4	5	6	7	8	9
.50	.8776	8771	8766	8761	8757	8752	8747	8742	8737	8732
.51	.8727	8723	8718	8713	8708	8703	8698	8693	8688	8683
.52	.8678	8673	8668	8663	8658	8653	8648	8643	8638	8633
.53	.8628	8623	8618	8613	8608	8603	8598	8592	8587	8582
.54	.8577	8572	8567	8562	8556	8551	8546	8541	8536	8530
.55	.8525	8520	8515	8510	8504	8499	8494	8488	8483	8478
.56	.8473	8467	8462	8457	8451	8446	8441	8435	8430	8424
.57	.8419	8414	8408	8403	8397	8392	8386	8381	8376	8370
.58	.8365	8359	8354	8348	8343	8337	8332	8326	8321	8315
.59	.8309	8304	8298	8293	8287	8281	8276	8270	8265	8259
.60	.8253	8248	8242	8236	8231	8225	8219	8214	8208	8202
.61	.8196	8191	8185	8179	8173	8168	8162	8156	8150	8145
.62	.8139	8133	8127	8121	8115	8110	8104	8098	8092	8086
.63	.8080	8074	8068	8063	8057	8051	8045	8039	8033	8027
.64	.8021	8015	8009	8003	7997	7991	7985	7979	7973	7967
.65	.7961	7955	7949	7943	7937	7930	7924	7918	7912	7906
.66	.7900	7894	7888	7881	7875	7869	7863	7857	7851	7844
.67	.7838	7832	7826	7820	7813	7807	7801	7795	7788	7782
.68	.7776	7769	7763	7757	7751	7744	7738	7732	7725	7719
.69	.7712	7706	7700	7693	7687	7681	7674	7668	7661	7655
.70	.7648	7642	7636	7629	7623	7616	7610	7603	7597	7590
.71	.7584	7577	7571	7564	7557	7551	7544	7538	7531	7525
.72	.7518	7511	7505	7498	7492	7485	7478	7472	7465	7458
.73	.7452	7445	7438	7432	7425	7418	7412	7405	7398	7391
.74	.7385	7378	7371	7364	7358	7351	7344	7337	7331	7324
.75	.7317	7310	7303	7296	7290	7283	7276	7269	7262	7255
.76	.7248	7241	7235	7228	7221	7214	7207	7200	7193	7186
.77	.7179	7172	7165	7158	7151	7144	7137	7130	7123	7116
.78	.7109	7102	7095	7088	7081	7074	7067	7060	7053	7046
.79	.7038	7031	7024	7017	7010	7003	6996	6989	6981	6974
.80	.6967	6960	6953	6946	6938	6931	6924	6917	6909	6902
.81	.6895	6888	6880	6873	6866	6859	6851	6844	6837	6830
.82	.6822	6815	6808	6800	6793	6786	6778	6771	6764	6756
.83	.6749	6741	6734	6727	6719	6712	6704	6697	6690	6682
.84	.6675	6667	6660	6652	6645	6637	6630	6622	6615	6607
.85	.6600	6592	6585	6577	6570	6562	6555	6547	6540	6532
.86	.6524	6517	6509	6502	6494	6486	6479	6471	6464	6456
.87	.6448	6441	6433	6425	6418	6410	6402	6395	6387	6379
.88	.6372	6364	6356	6348	6341	6333	6325	6317	6310	6302
.89	.6294	6286	6279	6271	6263	6255	6247	6240	6232	6224
.90	.6216	6208	6200	6193	6185	6177	6169	6161	6153	6145
.91	.6137	6130	6122	6114	6106	6098	6090	6082	6074	6066
.92	.6058	6050	6042	6034	6026	6018	6010	6002	5994	5986
.93	.5978	5970	5962	5954	5946	5938	5930	5922	5914	5906
.94	.5898	5890	5882	5874	5866	5857	5849	5841	5833	5825
.95	.5817	5809	5801	5792	5784	5776	5768	5760	5752	5743
.96	.5735	5727	5719	5711	5702	5694	5686	5678	5669	5661
.97	.5653	5645	5636	5628	5620	5612	5603	5595	5587	5579
.98	.5570	5562	5554	5545	5537	5529	5520	5512	5504	5495
.99	.5487	5479	5470	5462	5453	5445	5437	5428	5420	5411

n	6	7	8	9	10
$n\pi$	18.8496	21.9912	25.1327	28.2743	31.4159

TABLE XI. $\sin x$

x	0	1	2	3	4	5	6	7	8	9
1.00	.8415	8420	8425	8431	8436	8442	8447	8452	8458	8463
1.01	.8468	8474	8479	8484	8490	8495	8500	8505	8511	8516
1.02	.8521	8526	8532	8537	8542	8547	8552	8558	8563	8568
1.03	.8573	8578	8583	8588	8594	8599	8604	8609	8614	8619
1.04	.8624	8629	8634	8639	8644	8649	8654	8659	8664	8669
1.05	.8674	8679	8684	8689	8694	8699	8704	8709	8714	8719
1.06	.8724	8728	8733	8738	8743	8748	8753	8758	8762	8767
1.07	.8772	8777	8782	8786	8791	8796	8801	8805	8810	8815
1.08	.8820	8824	8829	8834	8838	8843	8848	8852	8857	8862
1.09	.8866	8871	8876	8880	8885	8889	8894	8898	8903	8908
1.10	.8912	8917	8921	8926	8930	8935	8939	8944	8948	8953
1.11	.8957	8961	8966	8970	8975	8979	8984	8988	8992	8997
1.12	.9001	9005	9010	9014	9018	9023	9027	9031	9036	9040
1.13	.9044	9048	9053	9057	9061	9065	9070	9074	9078	9082
1.14	.9086	9091	9095	9099	9103	9107	9111	9115	9119	9124
1.15	.9128	9132	9136	9140	9144	9148	9152	9156	9160	9164
1.16	.9168	9172	9176	9180	9184	9188	9192	9196	9200	9204
1.17	.9208	9211	9215	9219	9223	9227	9231	9235	9238	9242
1.18	.9246	9250	9254	9257	9261	9265	9269	9272	9276	9280
1.19	.9284	9287	9291	9295	9298	9302	9306	9309	9313	9317
1.20	.9320	9324	9328	9331	9335	9338	9342	9346	9349	9353
1.21	.9356	9360	9363	9367	9370	9374	9377	9381	9384	9388
1.22	.9391	9394	9398	9401	9405	9408	9411	9415	9418	9422
1.23	.9425	9428	9432	9435	9438	9441	9445	9448	9451	9455
1.24	.9458	9461	9464	9468	9471	9474	9477	9480	9484	9487
1.25	.9490	9493	9496	9499	9502	9505	9509	9512	9515	9518
1.26	.9521	9524	9527	9530	9533	9536	9539	9542	9545	9548
1.27	.9551	9554	9557	9560	9563	9566	9569	9572	9574	9577
1.28	.9580	9583	9586	9589	9592	9594	9597	9600	9603	9606
1.29	.9608	9611	9614	9617	9619	9622	9625	9628	9630	9633
1.30	.9636	9638	9641	9644	9646	9649	9651	9654	9657	9659
1.31	.9662	9664	9667	9670	9672	9675	9677	9680	9682	9685
1.32	.9687	9690	9692	9695	9697	9699	9702	9704	9707	9709
1.33	.9711	9714	9716	9719	9721	9723	9726	9728	9730	9733
1.34	.9735	9737	9739	9742	9744	9746	9748	9751	9753	9755
1.35	.9757	9759	9762	9764	9766	9768	9770	9772	9774	9777
1.36	.9779	9781	9783	9785	9787	9789	9791	9793	9795	9797
1.37	.9799	9801	9803	9805	9807	9809	9811	9813	9815	9817
1.38	.9819	9820	9822	9824	9826	9828	9830	9832	9833	9835
1.39	.9837	9839	9841	9842	9844	9846	9848	9849	9851	9853
1.40	.9854	9856	9858	9860	9861	9863	9865	9866	9868	9869
1.41	.9871	9873	9874	9876	9877	9879	9880	9882	9883	9885
1.42	.9887	9888	9890	9891	9892	9894	9895	9897	9898	9900
1.43	.9901	9902	9904	9905	9907	9908	9909	9911	9912	9913
1.44	.9915	9916	9917	9918	9920	9921	9922	9923	9925	9926
1.45	.9927	9928	9930	9931	9932	9933	9934	9935	9936	9938
1.46	.9939	9940	9941	9942	9943	9944	9945	9946	9947	9948
1.47	.9949	9950	9951	9952	9953	9954	9955	9956	9957	9958
1.48	.9959	9960	9961	9961	9962	9963	9964	9965	9966	9967
1.49	.9967	9968	9969	9970	9971	9971	9972	9973	9974	9974

n	1	2	3	4	5
$n\pi$	3.1416	6.2832	9.4248	12.5664	15.7080

TABLE XI.

$\cos x$

x	0	1	2	3	4	5	6	7	8	9
1.00	.5403	5395	5386	5378	5369	5361	5352	5344	5336	5327
1.01	.5319	5310	5302	5293	5285	5276	5268	5259	5251	5242
1.02	.5234	5225	5217	5208	5200	5191	5182	5174	5165	5157
1.03	.5148	5140	5131	5122	5114	5105	5097	5088	5079	5071
1.04	.5062	5054	5045	5036	5028	5019	5010	5002	4993	4984
1.05	.4976	4967	4958	4950	4941	4932	4924	4915	4906	4897
1.06	.4889	4880	4871	4863	4854	4845	4836	4828	4819	4810
1.07	.4801	4792	4784	4775	4766	4757	4749	4740	4731	4722
1.08	.4713	4704	4696	4687	4678	4669	4660	4651	4643	4634
1.09	.4625	4616	4607	4598	4589	4580	4572	4563	4554	4545
1.10	.4536	4527	4518	4509	4500	4491	4482	4473	4465	4456
1.11	.4447	4438	4429	4420	4411	4402	4393	4384	4375	4366
1.12	.4357	4348	4339	4330	4321	4312	4303	4294	4285	4276
1.13	.4267	4258	4249	4239	4230	4221	4212	4203	4194	4185
1.14	.4176	4167	4158	4149	4140	4130	4121	4112	4103	4094
1.15	.4085	4076	4067	4057	4048	4039	4030	4021	4012	4003
1.16	.3993	3984	3975	3966	3957	3948	3938	3929	3920	3911
1.17	.3902	3892	3883	3874	3865	3855	3846	3837	3828	3818
1.18	.3809	3800	3791	3781	3772	3763	3754	3744	3735	3726
1.19	.3717	3707	3698	3689	3679	3670	3661	3652	3642	3633
1.20	.3624	3614	3605	3596	3586	3577	3568	3558	3549	3540
1.21	.3530	3521	3511	3502	3493	3483	3474	3465	3455	3446
1.22	.3436	3427	3418	3408	3399	3389	3380	3371	3361	3352
1.23	.3342	3333	3324	3314	3305	3295	3286	3276	3267	3257
1.24	.3248	3239	3229	3220	3210	3201	3191	3182	3172	3163
1.25	.3153	3144	3134	3125	3115	3106	3096	3087	3077	3068
1.26	.3058	3049	3039	3030	3020	3011	3001	2991	2982	2972
1.27	.2963	2953	2944	2934	2925	2915	2905	2896	2886	2877
1.28	.2867	2858	2848	2838	2829	2819	2810	2800	2790	2781
1.29	.2771	2762	2752	2742	2733	2723	2714	2704	2694	2685
1.30	.2675	2665	2656	2646	2636	2627	2617	2607	2598	2588
1.31	.2579	2569	2559	2550	2540	2530	2520	2511	2501	2491
1.32	.2482	2472	2462	2453	2443	2433	2424	2414	2404	2394
1.33	.2385	2375	2365	2356	2346	2336	2326	2317	2307	2297
1.34	.2288	2278	2268	2258	2249	2239	2229	2219	2210	2200
1.35	.2190	2180	2171	2161	2151	2141	2131	2122	2112	2102
1.36	.2092	2083	2073	2063	2053	2043	2034	2024	2014	2004
1.37	.1994	1985	1975	1965	1955	1945	1936	1926	1916	1906
1.38	.1896	1887	1877	1867	1857	1847	1837	1828	1818	1808
1.39	.1798	1788	1778	1769	1759	1749	1739	1729	1719	1710
1.40	.1700	1690	1680	1670	1660	1650	1641	1631	1621	1611
1.41	.1601	1591	1581	1571	1562	1552	1542	1532	1522	1512
1.42	.1502	1492	1482	1473	1463	1453	1443	1433	1423	1413
1.43	.1403	1393	1384	1374	1364	1354	1344	1334	1324	1314
1.44	.1304	1294	1284	1274	1265	1255	1245	1235	1225	1215
1.45	.1205	1195	1185	1175	1165	1155	1145	1136	1126	1116
1.46	.1106	1096	1086	1076	1066	1056	1046	1036	1026	1016
1.47	.1006	0996	0986	0976	0966	0956	0947	0937	0927	0917
1.48	.0907	0897	0887	0877	0867	0857	0847	0837	0827	0817
1.49	.0807	0797	0787	0777	0767	0757	0747	0737	0727	0717

n	6	7	8	9	10
$n\pi$	18.8496	21.9912	25.1327	28.2743	31.4159

TABLE XI. $\sin x$

x	0	1	2	3	4	5	6	7	8	9
1.50	.9975	9976	9976	9977	9978	9978	9979	9980	9980	9981
1.51	.9982	9982	9983	9983	9984	9984	9985	9986	9986	9987
1.52	.9987	9988	9988	9989	9989	9990	9990	9990	9991	9991
1.53	.9992	9992	9992	9993	9993	9994	9994	9994	9995	9995
1.54	.9995	9996	9996	9996	9996	9997	9997	9997	9997	9998
1.55	.9998	9998	9998	9998	9999	9999	9999	9999	9999	9999
1.56	.9999	*0000	*0000	*0000	*0000	*0000	*0000	*0000	*0000	*0000
1.57	1.0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
1.58	1.0000	*9999	*9999	*9999	*9999	*9999	*9999	*9999	*9999	*9998
1.59	.9998	9998	9998	9998	9997	9997	9997	9997	9996	9996
1.60	.9996	9995	9995	9995	9994	9994	9994	9993	9993	9993
1.61	.9992	9992	9992	9991	9991	9990	9990	9989	9989	9988
1.62	.9988	9987	9987	9986	9986	9985	9985	9984	9984	9983
1.63	.9982	9982	9981	9981	9980	9979	9979	9978	9977	9977
1.64	.9976	9975	9975	9974	9973	9972	9972	9971	9970	9969
1.65	.9969	9968	9967	9966	9965	9965	9964	9963	9962	9961
1.66	.9960	9959	9958	9958	9957	9956	9955	9954	9953	9952
1.67	.9951	9950	9949	9948	9947	9946	9945	9944	9943	9942
1.68	.9940	9939	9938	9937	9936	9935	9934	9933	9931	9930
1.69	.9929	9928	9927	9925	9924	9923	9922	9920	9919	9918
1.70	.9917	9915	9914	9913	9911	9910	9909	9907	9906	9905
1.71	.9903	9902	9900	9899	9898	9896	9895	9893	9892	9890
1.72	.9889	9887	9886	9884	9883	9881	9880	9878	9877	9875
1.73	.9874	9872	9870	9869	9867	9865	9864	9862	9861	9859
1.74	.9857	9856	9854	9852	9850	9849	9847	9845	9843	9842
1.75	.9840	9838	9836	9834	9833	9831	9829	9827	9825	9823
1.76	.9822	9820	9818	9816	9814	9812	9810	9808	9806	9804
1.77	.9802	9800	9798	9796	9794	9792	9790	9788	9786	9784
1.78	.9782	9780	9778	9776	9774	9771	9769	9767	9765	9763
1.79	.9761	9759	9756	9754	9752	9750	9747	9745	9743	9741
1.80	.9738	9736	9734	9732	9729	9727	9725	9722	9720	9718
1.81	.9715	9713	9711	9708	9706	9703	9701	9698	9696	9694
1.82	.9691	9689	9686	9684	9681	9679	9676	9674	9671	9669
1.83	.9666	9663	9661	9658	9656	9653	9650	9648	9645	9642
1.84	.9640	9637	9634	9632	9629	9626	9624	9621	9618	9616
1.85	.9613	9610	9607	9604	9602	9599	9596	9593	9590	9588
1.86	.9585	9582	9579	9576	9573	9570	9567	9565	9562	9559
1.87	.9556	9553	9550	9547	9544	9541	9538	9535	9532	9529
1.88	.9526	9523	9520	9517	9514	9510	9507	9504	9501	9498
1.89	.9495	9492	9489	9485	9482	9479	9476	9473	9469	9466
1.90	.9463	9460	9457	9453	9450	9447	9443	9440	9437	9434
1.91	.9430	9427	9424	9420	9417	9413	9410	9407	9403	9400
1.92	.9396	9393	9390	9386	9383	9379	9376	9372	9369	9365
1.93	.9362	9358	9355	9351	9348	9344	9341	9337	9333	9330
1.94	.9326	9323	9319	9315	9312	9308	9304	9301	9297	9293
1.95	.9290	9286	9282	9278	9275	9271	9267	9263	9260	9256
1.96	.9252	9248	9245	9241	9237	9233	9229	9225	9221	9218
1.97	.9214	9210	9206	9202	9198	9194	9190	9186	9182	9178
1.98	.9174	9170	9166	9162	9158	9154	9150	9146	9142	9138
1.99	.9134	9130	9126	9122	9118	9114	9110	9105	9101	9097

n	1	2	3	4	5
$n\pi$	3.1416	6.2832	9.4248	12.5664	15.7080

TABLE XI. $\cos x$

x	0	1	2	3	4	5	6	7	8	9
1.50	.0707	0697	0687	0677	0667	0657	0648	0638	0628	0618
1.51	.0608	0598	0588	0578	0568	0558	0548	0538	0528	0518
1.52	.0508	0498	0488	0478	0468	0458	0448	0438	0428	0418
1.53	.0408	0398	0388	0378	0368	0358	0348	0338	0328	0318
1.54	.0308	0298	0288	0278	0268	0258	0248	0238	0228	0218
1.55	.0208	0198	0188	0178	0168	0158	0148	0138	0128	0118
1.56	.0108	0098	0088	0078	0068	0058	0048	0038	0028	0018
1.57	.0008	*0002	*0012	*0022	*0032	*0042	*0052	*0062	*0072	*0082
1.58	−.0092	0102	0112	0122	0132	0142	0152	0162	0172	0182
1.59	−.0192	0202	0212	0222	0232	0242	0252	0262	0272	0282
1.60	−.0292	0302	0312	0322	0332	0342	0352	0362	0372	0382
1.61	−.0392	0402	0412	0422	0432	0442	0452	0462	0472	0482
1.62	−.0492	0502	0512	0522	0532	0542	0552	0562	0572	0582
1.63	−.0592	0602	0612	0622	0632	0642	0652	0662	0672	0682
1.64	−.0691	0701	0711	0721	0731	0741	0751	0761	0771	0781
1.65	−.0791	0801	0811	0821	0831	0841	0851	0861	0871	0881
1.66	−.0891	0901	0911	0921	0931	0941	0951	0961	0971	0980
1.67	−.0990	1000	1010	1020	1030	1040	1050	1060	1070	1080
1.68	−.1090	1100	1110	1120	1130	1140	1149	1159	1169	1179
1.69	−.1189	1199	1209	1219	1229	1239	1249	1259	1269	1279
1.70	−.1288	1298	1308	1318	1328	1338	1348	1358	1368	1378
1.71	−.1388	1397	1407	1417	1427	1437	1447	1457	1467	1477
1.72	−.1487	1496	1506	1516	1526	1536	1546	1556	1566	1575
1.73	−.1585	1595	1605	1615	1625	1635	1645	1654	1664	1674
1.74	−.1684	1694	1704	1714	1723	1733	1743	1753	1763	1773
1.75	−.1782	1792	1802	1812	1822	1832	1841	1851	1861	1871
1.76	−.1881	1891	1900	1910	1920	1930	1940	1949	1959	1969
1.77	−.1979	1989	1998	2008	2018	2028	2038	2047	2057	2067
1.78	−.2077	2087	2096	2106	2116	2126	2135	2145	2155	2165
1.79	−.2175	2184	2194	2204	2214	2223	2233	2243	2253	2262
1.80	−.2272	2282	2291	2301	2311	2321	2330	2340	2350	2360
1.81	−.2369	2379	2389	2398	2408	2418	2428	2437	2447	2457
1.82	−.2466	2476	2486	2495	2505	2515	2524	2534	2544	2553
1.83	−.2563	2573	2582	2592	2602	2611	2621	2631	2640	2650
1.84	−.2660	2669	2679	2689	2698	2708	2717	2727	2737	2746
1.85	−.2756	2766	2775	2785	2794	2804	2814	2823	2833	2842
1.86	−.2852	2861	2871	2881	2890	2900	2909	2919	2928	2938
1.87	−.2948	2957	2967	2976	2986	2995	3005	3014	3024	3033
1.88	−.3043	3053	3062	3072	3081	3091	3100	3110	3119	3129
1.89	−.3138	3148	3157	3167	3176	3186	3195	3204	3214	3223
1.90	−.3233	3242	3252	3261	3271	3280	3290	3299	3308	3318
1.91	−.3327	3337	3346	3356	3365	3374	3384	3393	3403	3412
1.92	−.3421	3431	3440	3450	3459	3468	3478	3487	3497	3506
1.93	−.3515	3525	3534	3543	3553	3562	3571	3581	3590	3599
1.94	−.3609	3618	3627	3637	3646	3655	3665	3674	3683	3693
1.95	−.3702	3711	3720	3730	3739	3748	3757	3767	3776	3785
1.96	−.3795	3804	3813	3822	3831	3841	3850	3859	3868	3878
1.97	−.3887	3896	3905	3914	3924	3933	3942	3951	3960	3970
1.98	−.3979	3988	3997	4006	4015	4025	4034	4043	4052	4061
1.99	−.4070	4079	4089	4098	4107	4116	4125	4134	4143	4152

n	6	7	8	9	10
$n\pi$	18.8496	21.9912	25.1327	28.2743	31.4159

TABLE XII.

$\tan x$

x	0	1	2	3	4	5	6	7	8	9
.00	.0000	0010	0020	0030	0040	0050	0060	0070	0080	0090
.01	.0100	0110	0120	0130	0140	0150	0160	0170	0180	0190
.02	.0200	0210	0220	0230	0240	0250	0260	0270	0280	0290
.03	.0300	0310	0320	0330	0340	0350	0360	0370	0380	0390
.04	.0400	0410	0420	0430	0440	0450	0460	0470	0480	0490
.05	.0500	0510	0520	0530	0541	0551	0561	0571	0581	0591
.06	.0601	0611	0621	0631	0641	0651	0861	0671	0681	0691
.07	.0701	0711	0721	0731	0741	0751	0761	0772	0782	0792
.08	.0802	0812	0822	0832	0842	0852	0862	0872	0882	0892
.09	.0902	0913	0923	0933	0943	0953	0963	0973	0983	0993
.10	.1003	1013	1024	1034	1044	1054	1064	1074	1084	1094
.11	.1104	1115	1125	1135	1145	1155	1165	1175	1186	1196
.12	.1206	1216	1226	1236	1246	1257	1267	1277	1287	1297
.13	.1307	1318	1328	1338	1348	1358	1368	1379	1389	1399
.14	.1409	1419	1430	1440	1450	1460	1470	1481	1491	1501
.15	.1511	1522	1532	1542	1552	1563	1573	1583	1593	1604
.16	.1614	1624	1634	1645	1655	1665	1675	1686	1696	1706
.17	.1717	1727	1737	1747	1758	1768	1778	1789	1799	1809
.18	.1820	1830	1840	1851	1861	1871	1882	1892	1902	1913
.19	.1923	1934	1944	1954	1965	1975	1985	1996	2006	2017
.20	.2027	2038	2048	2058	2069	2079	2090	2100	2111	2121
.21	.2131	2142	2152	2163	2173	2184	2194	2205	2215	2226
.22	.2236	2247	2257	2268	2278	2289	2299	2310	2320	2331
.23	.2341	2352	2363	2373	2384	2394	2405	2415	2426	2437
.24	.2447	2458	2468	2479	2490	2500	2511	2521	2532	2543
.25	.2553	2564	2575	2585	2596	2607	2617	2628	2639	2650
.26	.2660	2671	2682	2692	2703	2714	2725	2735	2746	2757
.27	.2768	2778	2789	2800	2811	2821	2832	2843	2854	2865
.28	.2876	2886	2897	2908	2919	2930	2941	2951	2962	2973
.29	.2984	2995	3006	3017	3028	3039	3050	3061	3071	3082
.30	.3093	3104	3115	3126	3137	3148	3159	3170	3181	3192
.31	.3203	3214	3225	3236	3247	3258	3270	3281	3292	3303
.32	.3314	3325	3336	3347	3358	3369	3381	3392	3403	3414
.33	.3425	3436	3448	3459	3470	3481	3492	3504	3515	3526
.34	.3537	3549	3560	3571	3582	3594	3605	3616	3628	3639
.35	.3650	3662	3673	3684	3696	3707	3718	3730	3741	3753
.36	.3764	3775	3787	3798	3810	3821	3833	3844	3856	3867
.37	.3879	3890	3902	3913	3925	3936	3948	3959	3971	3983
.38	.3994	4006	4017	4029	4041	4052	4064	4076	4087	4099
.39	.4111	4122	4134	4146	4157	4169	4181	4193	4204	4216
.40	.4228	4240	4252	4263	4275	4287	4299	4311	4323	4334
.41	.4346	4358	4370	4382	4394	4406	4418	4430	4442	4454
.42	.4466	4478	4490	4502	4514	4526	4538	4550	4562	4574
.43	.4586	4598	4610	4623	4635	4647	4659	4671	4683	4696
.44	.4708	4720	4732	4745	4757	4769	4781	4794	4806	4818
.45	.4831	4843	4855	4868	4880	4892	4905	4917	4930	4942
.46	.4954	4967	4979	4992	5004	5017	5029	5042	5055	5067
.47	.5080	5092	5105	5117	5130	5143	5155	5168	5181	5193
.48	.5206	5219	5232	5244	5257	5270	5283	5295	5308	5321
.49	.5334	5347	5360	5372	5385	5398	5411	5424	5437	5450

n	1	2	3	4	5
$n\pi$	3.1416	6.2832	9.4248	12.5664	15.7080

TABLE XII. tan x

x	0	1	2	3	4	5	6	7	8	9
.50	.5463	5476	5489	5502	5515	5528	5541	5554	5537	5580
.51	.5594	5607	5620	5633	5646	5659	5673	5686	5699	5712
.52	.5726	5739	5752	5766	5779	5792	5806	5819	5832	5846
.53	.5859	5873	5886	5900	5913	5927	5940	5954	5967	5981
.54	.5994	6008	6022	6035	6049	6062	6076	6090	6104	6117
.55	.6131	6145	6159	6172	6186	6200	6214	6228	6242	6256
.56	.6269	6283	6297	6311	6325	6339	6353	6367	6382	6396
.57	.6410	6424	6438	6452	6466	6480	6495	6509	6523	6537
.58	.6552	6566	6580	6595	6609	6623	6638	6652	6667	6681
.59	.6696	6710	6725	6739	6754	6768	6783	6797	6812	6827
.60	.6841	6856	6871	6886	6900	6915	6930	6945	6959	6974
.61	.6989	7004	7019	7034	7049	7064	7079	7094	7109	7124
.62	.7139	7154	7169	7184	7200	7215	7230	7245	7261	7276
.63	.7291	7306	7322	7337	7353	7368	7383	7399	7414	7430
.64	.7445	7461	7477	7492	7508	7523	7539	7555	7571	7586
.65	.7602	7618	7634	7649	7665	7681	7697	7713	7729	7745
.66	.7761	7777	7793	7809	7825	7841	7858	7874	7890	7906
.67	.7923	7939	7955	7971	7988	8004	8021	8037	8054	8070
.68	.8087	8103	8120	8136	8153	8170	8186	8203	8220	8237
.69	.8253	8270	8287	8304	8321	8338	8355	8372	8389	8406
.70	.8423	8440	8457	8474	8491	8509	8526	8543	8561	8578
.71	.8595	8613	8630	8648	8665	8683	8700	8718	8735	8753
.72	.8771	8788	8806	8824	8842	8860	8877	8895	8913	8931
.73	.8949	8967	8985	9003	9021	9040	9058	9076	9094	9113
.74	.9131	9149	9168	9186	9205	9223	9242	9260	9279	9297
.75	.9316	9335	9353	9372	9391	9410	9429	9448	9467	9485
.76	.9505	9524	9543	9562	9581	9600	9619	9639	9658	9677
.77	.9697	9716	9736	9755	9775	9794	9814	9833	9853	9873
.78	.9893	9912	9932	9952	9972	9992	*0012	*0032	*0052	*0072
.79	1.0092	0113	0133	0153	0174	0194	0214	0235	0255	0276
.80	1.0296	0317	0338	0358	0379	0400	0421	0442	0463	0484
.81	1.0505	0526	0547	0568	0589	0610	0632	0653	0674	0696
.82	1.0717	0739	0760	0782	0803	0825	0847	0869	0891	0912
.83	1.0934	0956	0978	1000	1023	1045	1067	1089	1112	1134
.84	1.1156	1179	1201	1224	1247	1269	1292	1315	1338	1360
.85	1.1383	1406	1429	1452	1476	1499	1522	1545	1569	1592
.86	1.1616	1639	1663	1686	1710	1734	1758	1781	1805	1829
.87	1.1853	1877	1901	1926	1950	1974	1999	2023	2047	2072
.88	1.2097	2121	2146	2171	2196	2221	2246	2271	2296	2321
.89	1.2346	2371	2397	2422	2447	2473	2499	2524	2550	2576
.90	1.2602	2627	2653	2680	2706	2732	2758	2784	2811	2837
.91	1.2864	2890	2917	2944	2970	2997	3024	3051	3078	3105
.92	1.3133	3160	3187	3215	3242	3270	3297	3325	3353	3381
.93	1.3409	3437	3465	3493	3521	3550	3578	3606	3635	3664
.94	1.3692	3721	3750	3779	3808	3837	3866	3896	3925	3954
.95	1.3984	4013	4043	4073	4103	4133	4163	4193	4223	4253
.96	1.4284	4314	4345	4375	4406	4437	4468	4499	4530	4561
.97	1.4592	4623	4655	4686	4718	4750	4781	4813	4845	4877
.98	1.4910	4942	4974	5007	5039	5072	5105	5138	5171	5204
.99	1.5237	5270	5303	5337	5370	5404	5438	5472	5506	5540

n	6	7	8	9	10
$n\pi$	18.8496	21.9912	25.1327	28.2743	31.4159

TABLE XII. tan x

x	0	1	2	3	4	5	6	7	8	9
1.00	1.5574	1.5608	1.5643	1.5677	1.5712	1.5747	1.5782	1.5817	1.5852	1.5887
1.01	1.5922	1.5957	1.5993	1.6029	1.6064	1.6100	1.6136	1.6172	1.6209	1.6245
1.02	1.6281	1.6318	1.6355	1.6391	1.6428	1.6465	1.6503	1.6540	1.6577	1.6615
1.03	1.6652	1.6690	1.6728	1.6766	1.6804	1.6843	1.6881	1.6920	1.6958	1.6997
1.04	1.7036	1.7075	1.7114	1.7154	1.7193	1.7233	1.7273	1.7313	1.7353	1.7393
1.05	1.7433	1.7474	1.7514	1.7555	1.7596	1.7637	1.7678	1.7719	1.7761	1.7802
1.06	1.7844	1.7886	1.7928	1.7970	1.8013	1.8055	1.8098	1.8141	1.8184	1.8227
1.07	1.8270	1.8314	1.8357	1.8401	1.8445	1.8489	1.8533	1.8578	1.8622	1.8667
1.08	1.8712	1.8757	1.8803	1.8848	1.8894	1.8939	1.8985	1.9031	1.9078	1.9124
1.09	1.9171	1.9218	1.9265	1.9312	1.9359	1.9407	1.9455	1.9503	1.9551	1.9599
1.10	1.9648	1.9696	1.9745	1.9794	1.9844	1.9893	1.9943	1.9993	2.0043	2.0093
1.11	2.0143	2.0194	2.0245	2.0296	2.0347	2.0399	2.0451	2.0502	2.0555	2.0607
1.12	2.0660	2.0712	2.0765	2.0819	2.0872	2.0926	2.0980	2.1034	2.1088	2.1143
1.13	2.1198	2.1253	2.1308	2.1363	2.1419	2.1475	2.1531	2.1588	2.1645	2.1702
1.14	2.1759	2.1816	2.1874	2.1932	2.1990	2.2049	2.2107	2.2166	2.2226	2.2285
1.15	2.2345	2.2405	2.2465	2.2526	2.2587	2.2648	2.2709	2.2771	2.2833	2.2895
1.16	2.2958	2.3021	2.3084	2.3147	2.3211	2.3275	2.3339	2.3404	2.3469	2.3534
1.17	2.3600	2.3666	2.3732	2.3798	2.3865	2.3932	2.4000	2.4067	2.4135	2.4204
1.18	2.4273	2.4342	2.4411	2.4481	2.4551	2.4621	2.4692	2.4763	2.4835	2.4907
1.19	2.4979	2.5052	2.5125	2.5198	2.5271	2.5346	2.5420	2.5495	2.5570	2.5646
1.20	2.5722	2.5798	2.5875	2.5952	2.6029	2.6107	2.6186	2.6264	2.6344	2.6423
1.21	2.6503	2.6584	2.6665	2.6746	2.6828	2.6910	2.6992	2.7076	2.7159	2.7243
1.22	2.7328	2.7412	2.7498	2.7584	2.7670	2.7757	2.7844	2.7932	2.8020	2.8109
1.23	2.8198	2.8288	2.8378	2.8469	2.8560	2.8652	2.8744	2.8837	2.8931	2.9025
1.24	2.9119	2.9214	2.9310	2.9406	2.9503	2.9600	2.9698	2.9797	2.9896	2.9995
1.25	3.0096	3.0197	3.0298	3.0400	3.0503	3.0606	3.0710	3.0815	3.0920	3.1026
1.26	3.1133	3.1240	3.1348	3.1456	3.1566	3.1676	3.1786	3.1898	3.2010	3.2123
1.27	3.2236	3.2351	3.2466	3.2581	3.2698	3.2815	3.2933	3.3052	3.3172	3.3292
1.28	3.3413	3.3536	3.3658	3.3782	3.3907	3.4032	3.4158	3.4285	3.4413	3.4542
1.29	3.4672	3.4803	3.4934	3.5067	3.5200	3.5335	3.5470	3.5606	3.5744	3.5882
1.30	3.6021	3.6161	3.6303	3.6445	3.6588	3.6733	3.6878	3.7025	3.7172	3.7321
1.31	3.7471	3.7622	3.7774	3.7927	3.8082	3.8237	3.8394	3.8552	3.8711	3.8872
1.32	3.9033	3.9196	3.9361	3.9526	3.9693	3.9861	4.0031	4.0202	4.0374	4.0548
1.33	4.0723	4.0900	4.1078	4.1257	4.1438	4.1621	4.1805	4.1990	4.2177	4.2366
1.34	4.2556	4.2748	4.2942	4.3137	4.3334	4.3532	4.3733	4.3935	4.4139	4.4345
1.35	4.4552	4.4762	4.4973	4.5186	4.5401	4.5618	4.5838	4.6059	4.6282	4.6507
1.36	4.6734	4.6964	4.7196	4.7429	4.7665	4.7904	4.8144	4.8387	4.8633	4.8880
1.37	4.9131	4.9383	4.9638	4.9896	5.0156	5.0419	5.0685	5.0953	5.1224	5.1498
1.38	5.1774	5.2054	5.2336	5.2622	5.2910	5.3202	5.3496	5.3794	5.4095	5.4399
1.39	5.4707	5.5018	5.5332	5.5650	5.5972	5.6297	5.6626	5.6958	5.7294	5.7635
1.40	5.7979	5.8327	5.8679	5.9036	5.9396	5.9761	6.0131	6.0504	6.0883	6.1266
1.41	6.1654	6.2046	6.2444	6.2846	6.3253	6.3666	6.4084	6.4508	6.4936	6.5371
1.42	6.5811	6.6257	6.6709	6.7167	6.7632	6.8102	6.8579	6.9063	6.9553	7.0050
1.43	7.0555	7.1066	7.1585	7.2111	7.2645	7.3186	7.3736	7.4294	7.4860	7.5435
1.44	7.6018	7.6611	7.7212	7.7823	7.8444	7.9074	7.9714	8.0365	8.1026	8.1698
1.45	8.2381	8.3075	8.3781	8.4499	8.5229	8.5972	8.6728	8.7497	8.8279	8.9075
1.46	8.9886	9.0711	9.1552	9.2408	9.3280	9.4168	9.5074	9.5996	9.6937	9.7896
1.47	9.8874	9.9871	10.089	10.193	10.299	10.407	10.517	10.630	10.745	10.863
1.48	10.983	11.106	11.232	11.361	11.492	11.627	11.765	11.906	12.050	12.198
1.49	12.350	12.505	12.665	12.828	12.996	13.168	13.345	13.526	13.713	13.904

n	1	2	3	4	5
$n\pi$	3.1416	6.2832	9.4248	12.5664	15.7080

TABLE XII. $\tan x$

x	0	1	2	3	4	5	6	7	8	9
1.50	14.101	14.304	14.513	14.727	14.949	15.176	15.411	15.654	15.904	16.162
1.51	16.428	16.703	16.988	17.283	17.588	17.904	18.231	18.571	18.923	19.289
1.52	19.670	20.065	20.477	20.906	21.354	21.821	22.308	22.818	23.352	23.912
1.53	24.498	25.115	25.763	26.445	27.164	27.924	28.727	29.578	30.480	31.440
1.54	32.461	33.551	34.717	35.967	37.310	38.757	40.320	42.015	43.859	45.872
1.55	48.078	50.508	53.196	56.185	59.531	63.301	67.579	72.478	78.143	84.768
1.56	92.620	102.08	113.68	128.26	147.14	172.52	208.49	263.41	357.61	556.69
1.57	1255.8	*4909.8	*830.79	*453.79	*312.14	*237.89	*192.17	*161.19	*138.82	*121.89
1.58	−108.65	98.001	89.253	81.938	75.732	70.400	65.769	61.709	58.121	54.928
1.59	−52.067	49.489	47.155	45.030	43.089	41.308	39.668	38.154	36.751	35.447
1.60	−34.233	33.098	32.037	31.042	30.106	29.225	28.394	27.609	26.867	26.163
1.61	−25.495	24.860	24.256	23.681	23.132	22.608	22.107	21.628	21.169	20.729
1.62	−20.307	19.902	19.513	19.135	18.778	18.431	18.096	17.774	17.462	17.162
1.63	−16.871	16.590	16.318	16.055	15.801	15.554	15.315	15.083	14.858	14.639
1.64	−14.427	14.221	14.020	13.826	13.636	13.452	13.272	13.097	12.927	12.761
1.65	−12.599	12.442	12.288	12.137	11.991	11.848	11.708	11.572	11.438	11.308
1.66	−11.181	11.056	10.934	10.815	10.698	10.584	10.472	10.363	10.255	10.150
1.67	−10.047	9.9463	9.8473	9.7503	9.6552	9.5618	9.4703	9.3804	9.2923	9.2057
1.68	−9.1208	9.0373	8.9554	8.8749	8.7959	8.7182	8.6418	8.5668	8.4931	8.4205
1.69	−8.3492	8.2791	8.2101	8.1423	8.0755	8.0098	7.9452	7.8816	7.8190	7.7573
1.70	−7.6966	7.6368	7.5780	7.5200	7.4628	7.4066	7.3511	7.2965	7.2426	7.1896
1.71	−7.1373	7.0857	7.0348	6.9847	6.9353	6.8865	6.8384	6.7910	6.7442	6.6980
1.72	−6.6524	6.6075	6.5631	6.5193	6.4761	6.4334	6.3913	6.3497	6.3087	6.2681
1.73	−6.2281	6.1886	6.1495	6.1109	6.0728	6.0352	5.9980	5.9612	5.9249	5.8890
1.74	−5.8535	5.8185	5.7838	5.7496	5.7157	5.6822	5.6491	5.6164	5.5840	5.5520
1.75	−5.5204	5.4888	5.4581	5.4275	5.3972	5.3672	5.3376	5.3083	5.2792	5.2505
1.76	−5.2221	5.1940	5.1661	5.1386	5.1113	5.0843	5.0576	5.0312	5.0050	4.9791
1.77	−4.9534	4.9280	4.9028	4.8779	4.8532	4.8288	4.8046	4.7806	4.7569	4.7334
1.78	−4.7101	4.6870	4.6642	4.6415	4.6191	4.5968	4.5748	4.5530	4.5313	4.5099
1.79	−4.4887	4.4676	4.4467	4.4261	4.4056	4.3852	4.3651	4.3451	4.3253	4.3057
1.80	−4.2863	4.2670	4.2478	4.2289	4.2101	4.1914	4.1729	4.1546	4.1364	4.1184
1.81	−4.1005	4.0828	4.0652	4.0477	4.0304	4.0132	3.9962	3.9793	3.9625	3.9459
1.82	−3.9294	3.9130	3.8967	3.8806	3.8646	3.8488	3.8330	3.8172	3.8019	3.7865
1.83	−3.7712	3.7560	3.7410	3.7260	3.7112	3.6965	3.6819	3.6674	3.6530	3.6387
1.84	−3.6245	3.6104	3.5964	3.5825	3.5687	3.5551	3.5415	3.5280	3.5146	3.5013
1.85	−3.4881	3.4749	3.4619	3.4490	3.4361	3.4234	3.4107	3.3981	3.3856	3.3732
1.86	−3.3608	3.3486	3.3364	3.3243	3.3123	3.3004	3.2885	3.2767	3.2650	3.2534
1.87	−3.2419	3.2304	3.2190	3.2077	3.1964	3.1852	3.1741	3.1631	3.1521	3.1412
1.88	−3.1304	3.1196	3.1089	3.0983	3.0877	3.0772	3.0668	3.0564	3.0461	3.0359
1.89	−3.0257	3.0155	3.0055	2.9955	2.9855	2.9756	2.9658	2.9561	2.9463	2.9367
1.90	−2.9271	2.9176	2.9081	2.8986	2.8893	2.8799	2.8707	2.8615	2.8523	2.8432
1.91	−2.8341	2.8251	2.8162	2.8073	2.7984	2.7896	2.7808	2.7721	2.7635	2.7549
1.92	−2.7463	2.7378	2.7293	2.7209	2.7125	2.7042	2.6959	2.6876	2.6794	2.6713
1.93	−2.6632	2.6551	2.6471	2.6391	2.6311	2.6232	2.6154	2.6075	2.5998	2.5920
1.94	−2.5843	2.5767	2.5691	2.5615	2.5539	2.5464	2.5390	2.5315	2.5241	2.5168
1.95	−2.5095	2.5022	2.4950	2.4877	2.4806	2.4734	2.4663	2.4593	2.4522	2.4452
1.96	−2.4383	2.4314	2.4245	2.4176	2.4108	2.4040	2.3972	2.3905	2.3838	2.3771
1.97	−2.3705	2.3639	2.3573	2.3508	2.3443	2.3378	2.3313	2.3249	2.3185	2.3122
1.98	−2.3058	2.2995	2.2932	2.2870	2.2808	2.2746	2.2684	2.2623	2.2562	2.2501
1.99	−2.2441	2.2381	2.2321	2.2261	2.2201	2.2142	2.2083	2.2025	2.1966	2.1908

n	6	7	8	9	10
$n\pi$	18.8496	21.9912	25.1327	28.2743	31.4159

TABLE XIII. $\log_e x$

x	0	1	2	3	4	5	6	7	8	9
1.0	.0000	0100	0198	0296	0392	0488	0583	0677	0770	0862
1.1	.0953	1044	1133	1222	1310	1398	1484	1570	1655	1740
1.2	.1823	1906	1989	2070	2151	2231	2311	2390	2469	2546
1.3	.2624	2700	2776	2852	2927	3001	3075	3148	3221	3293
1.4	.3365	3436	3507	3577	3646	3716	3784	3853	3920	3988
1.5	.4055	4121	4187	4253	4318	4383	4447	4511	4574	4637
1.6	.4700	4762	4824	4886	4947	5008	5068	5128	5188	5247
1.7	.5306	5365	5423	5481	5539	5596	5653	5710	5766	5822
1.8	.5878	5933	5988	6043	6098	6152	6206	6259	6313	6366
1.9	.6419	6471	6523	6575	6627	6678	6729	6780	6831	6881
2.0	.6931	6981	7031	7080	7129	7178	7227	7275	7324	7372
2.1	.7419	7467	7514	7561	7608	7655	7701	7747	7793	7839
2.2	.7885	7930	7975	8020	8065	8109	8154	8198	8242	8286
2.3	.8329	8372	8416	8459	8502	8544	8587	8629	8671	8713
2.4	.8755	8796	8838	8879	8920	8961	9002	9042	9083	9123
2.5	.9163	9203	9243	9282	9322	9361	9400	9439	9478	9517
2.6	.9555	9594	9632	9670	9708	9746	9783	9821	9858	9895
2.7	.9933	9969	*0006	*0043	*0080	*0116	*0152	*0188	*0225	*0260
2.8	1.0296	0332	0367	0403	0438	0473	0508	0543	0578	0613
2.9	1.0647	0682	0716	0750	0784	0818	0852	0886	0919	0953
3.0	1.0986	1019	1053	1086	1119	1151	1184	1217	1249	1282
3.1	1.1314	1346	1378	1410	1442	1474	1506	1537	1569	1600
3.2	1.1632	1663	1694	1725	1756	1787	1817	1848	1878	1909
3.3	1.1939	1969	2000	2030	2060	2090	2119	2149	2179	2208
3.4	1.2238	2267	2296	2326	2355	2384	2413	2442	2470	2499
3.5	1.2528	2556	2585	2613	2641	2669	2698	2726	2754	2782
3.6	1.2809	2837	2865	2892	2920	2947	2975	3002	3029	3056
3.7	1.3083	3110	3137	3164	3191	3218	3244	3271	3297	3324
3.8	1.3350	3376	3403	3429	3455	3481	3507	3533	3558	3584
3.9	1.3610	3635	3661	3686	3712	3737	3762	3788	3813	3838
4.0	1.3863	3888	3913	3938	3962	3987	4012	4036	4061	4085
4.1	1.4110	4134	4159	4183	4207	4231	4255	4279	4303	4327
4.2	1.4351	4375	4398	4422	4446	4469	4493	4516	4540	4563
4.3	1.4586	4609	4633	4656	4679	4702	4725	4748	4770	4793
4.4	1.4816	4839	4861	4884	4907	4929	4951	4974	4996	5019
4.5	1.5041	5063	5085	5107	5129	5151	5173	5195	5217	5239
4.6	1.5261	5282	5304	5326	5347	5369	5390	5412	5433	5454
4.7	1.5476	5497	5518	5539	5560	5581	5602	5623	5644	5665
4.8	1.5686	5707	5728	5748	5769	5790	5810	5831	5851	5872
4.9	1.5892	5913	5933	5953	5974	5994	6014	6034	6054	6074
5.0	1.6094	6114	6134	6154	6174	6194	6214	6233	6253	6273
5.1	1.6292	6312	6332	6351	6371	6390	6409	6429	6448	6467
5.2	1.6487	6506	6525	6544	6563	6582	6601	6620	6639	6658
5.3	1.6677	6696	6715	6734	6752	6771	6790	6808	6827	6845
5.4	1.6864	6882	6901	6919	6938	6956	6974	6993	7011	7029

TABLE XIII.

$\log_e x$

x	0	1	2	3	4	5	6	7	8	9
5.5	1.7047	7066	7084	7102	7120	7138	7156	7174	7192	7210
5.6	1.7228	7246	7263	7281	7299	7317	7334	7352	7370	7387
5.7	1.7405	7422	7440	7457	7475	7492	7509	7527	7544	7561
5.8	1.7579	7596	7613	7630	7647	7664	7681	7699	7716	7733
5.9	1.7750	7766	7783	7800	7817	7834	7851	7867	7884	7901
6.0	1.7918	7934	7951	7967	7984	8001	8017	8034	8050	8066
6.1	1.8083	8099	8116	8132	8148	8165	8181	8197	8213	8229
6.2	1.8245	8262	8278	8294	8310	8326	8342	8358	8374	8390
6.3	1.8405	8421	8437	8453	8469	8485	8500	8516	8532	8547
6.4	1.8563	8579	8594	8610	8625	8641	8656	8672	8687	8703
6.5	1.8718	8733	8749	8764	8779	8795	8810	8825	8840	8856
6.6	1.8871	8886	8901	8916	8931	8946	8961	8976	8991	9006
6.7	1.9021	9036	9051	9066	9081	9095	9110	9125	9140	9155
6.8	1.9169	9184	9199	9213	9228	9242	9257	9272	9286	9301
6.9	1.9315	9330	9344	9359	9373	9387	9402	9416	9430	9445
7.0	1.9459	9473	9488	9502	9516	9530	9544	9559	9573	9587
7.1	1.9601	9615	9629	9643	9657	9671	9685	9699	9713	9727
7.2	1.9741	9755	9769	9782	9796	9810	9824	9838	9851	9865
7.3	1.9879	9892	9906	9920	9933	9947	9961	9974	9988	*0001
7.4	2.0015	0028	0042	0055	0069	0082	0096	0109	0122	0136
7.5	2.0149	0162	0176	0189	0202	0215	0229	0242	0255	0268
7.6	2.0281	0295	0308	0321	0334	0347	0360	0373	0386	0399
7.7	2.0412	0425	0438	0451	0464	0477	0490	0503	0516	0528
7.8	2.0541	0554	0567	0580	0592	0605	0618	0631	0643	0656
7.9	2.0669	0681	0694	0707	0719	0732	0744	0757	0769	0782
8.0	2.0794	0807	0819	0832	0844	0857	0869	0882	0894	0906
8.1	2.0919	0931	0943	0956	0968	0980	0992	1005	1017	1029
8.2	2.1041	1054	1066	1078	1090	1102	1114	1126	1138	1150
8.3	2.1163	1175	1187	1199	1211	1223	1235	1247	1258	1270
8.4	2.1282	1294	1306	1318	1330	1342	1353	1365	1377	1389
8.5	2.1401	1412	1424	1436	1448	1459	1471	1483	1494	1506
8.6	2.1518	1529	1541	1552	1564	1576	1587	1599	1610	1622
8.7	2.1633	1645	1656	1668	1679	1691	1702	1713	1725	1736
8.8	2.1748	1759	1770	1782	1793	1804	1815	1827	1838	1849
8.9	2.1861	1872	1883	1894	1905	1917	1928	1939	1950	1961
9.0	2.1972	1983	1994	2006	2017	2028	2039	2050	2061	2072
9.1	2.2083	2094	2105	2116	2127	2138	2148	2159	2170	2181
9.2	2.2192	2203	2214	2225	2235	2246	2257	2268	2279	2289
9.3	2.2300	2311	2322	2332	2343	2354	2364	2375	2386	2396
9.4	2.2407	2418	2428	2439	2450	2460	2471	2481	2492	2502
9.5	2.2513	2523	2534	2544	2555	2565	2576	2586	2597	2607
9.6	2.2618	2628	2638	2649	2659	2670	2680	2690	2701	2711
9.7	2.2721	2732	2742	2752	2762	2773	2783	2793	2803	2814
9.8	2.2824	2834	2844	2854	2865	2875	2885	2895	2905	2915
9.9	2.2925	2935	2946	2956	2966	2976	2986	2996	3006	3016

$\log 10 = 2.3026$, $\log 100 = 4.6052$, $\log 1000 = 6.9078$, $\log 10000 = 9.2103$, $\log 100000 = 11.5129$

TABLE XIV. e^x, e^{-x}, cosh x, sinh x

x	e^x	e^{-x}	cosh x	sinh x	x	e^x	e^{-x}	cosh x	sinh x
.0	1.0000	1.0000	1.0000	.0000	2.5	12.183	.082	6.132	6.050
.1	1.1052	.9048	1.0050	.1002	2.6	13.464	.074	6.769	6.695
.2	1.2214	.8187	1.0201	.2013	2.7	14.880	.067	7.474	7.406
.3	1.3499	.7408	1.0453	.3045	2.8	16.445	.061	8.253	8.192
.4	1.4918	.6703	1.0811	.4108	2.9	18.174	.055	9.115	9.060
.5	1.6487	.6065	1.1276	.5211	3.0	20.086	.050	10.068	10.018
.6	1.8221	.5488	1.1855	.6367	3.1	22.198	.045	11.122	11.076
.7	2.0138	.4966	1.2552	.7586	3.2	24.533	.041	12.287	12.246
.8	2.2255	.4493	1.3374	.8881	3.3	27.113	.037	13.575	13.538
.9	2.4596	.4066	1.4331	1.0265	3.4	29.964	.033	14.999	14.965
1.0	2.7183	.3679	1.5431	1.1752	3.5	33.116	.030	16.573	16.543
1.1	3.0042	.3329	1.6685	1.3356	3.6	36.598	.027	18.313	18.285
1.2	3.3201	.3012	1.8107	1.5095	3.7	40.447	.025	20.236	20.211
1.3	3.6693	.2725	1.9709	1.6984	3.8	44.701	.022	22.362	22.339
1.4	4.0552	.2466	2.1509	1.9043	3.9	49.402	.020	24.711	24.691
1.5	4.4817	.2231	2.3524	2.1293	4.0	54.598	.018	27.308	27.290
1.6	4.9530	.2019	2.5775	2.3756	4.1	60.340	.017	30.178	30.162
1.7	5.4739	.1827	2.8283	2.6456	4.2	66.686	.015	33.351	33.336
1.8	6.0496	.1653	3.1075	2.9422	4.3	73.700	.014	36.857	36.843
1.9	6.6859	.1496	3.4177	3.2682	4.4	81.451	.012	40.732	40.719
2.0	7.3891	.1353	3.7622	3.6269	4.5	90.017	.011	45.014	45.003
2.1	8.1662	.1225	4.1443	4.0219	4.6	99.484	.010	49.747	49.737
2.2	9.0250	.1108	4.5679	4.4571	4.7	109.95	.009	54.98	54.97
2.3	9.9742	.1003	5.0372	4.9370	4.8	121.51	.008	60.76	60.75
2.4	11.0232	.0907	5.5570	5.4662	4.9	134.29	.007	67.15	67.14

Some Useful Relations and Values

1 ft. = 30.48 cm.

1 mi. = 1.60935 km.

1 lb. = 0.4536 kgm.

1 $lb._w$ = 4.45 × 10^5 dynes.

π = 3.141593

e = 2.718282

1 rad. = $180°/\pi$ = 57°.2958

1° = 0.017453 rad.

g = 32.2 ft/sec^2 = 981 cm/sec^2.

Gravitational constant = 6.670 × 10^{-8} $cm^3/(gm\ sec^2)$

Radius of earth = 3960 mi.

PART II

TABLE XV. $\sinh x$

x	0	1	2	3	4	5	6	7	8	9
.00	.0000	0010	0020	0030	0040	0050	0060	0070	0080	0090
.01	.0100	0110	0120	0130	0140	0150	0160	0170	0180	0190
.02	.0200	0210	0220	0230	0240	0250	0260	0270	0280	0290
.03	.0300	0310	0320	0330	0340	0350	0360	0370	0380	0390
.04	.0400	0410	0420	0430	0440	0450	0460	0470	0480	0490
.05	.0500	0510	0520	0530	0540	0550	0560	0570	0580	0590
.06	.0600	0610	0620	0630	0640	0650	0660	0671	0681	0691
.07	.0701	0711	0721	0731	0741	0751	0761	0771	0781	0791
.08	.0801	0811	0821	0831	0841	0851	0861	0871	0881	0891
.09	.0901	0911	0921	0931	0941	0951	0961	0972	0982	0992
.10	.1002	1012	1022	1032	1042	1052	1062	1072	1082	1092
.11	.1102	1112	1122	1132	1142	1153	1163	1173	1183	1193
.12	.1203	1213	1223	1233	1243	1253	1263	1273	1283	1294
.13	.1304	1314	1324	1334	1344	1354	1364	1374	1384	1394
.14	.1405	1415	1425	1435	1445	1455	1465	1475	1485	1496
.15	.1506	1516	1526	1536	1546	1556	1566	1576	1587	1597
.16	.1607	1617	1627	1637	1647	1657	1668	1678	1688	1698
.17	.1708	1718	1728	1739	1749	1759	1769	1779	1789	1800
.18	.1810	1820	1830	1840	1850	1861	1871	1881	1891	1901
.19	.1911	1922	1932	1942	1952	1962	1973	1983	1993	2003
.20	.2013	2024	2034	2044	2054	2064	2075	2085	2095	2105
.21	.2115	2126	2136	2146	2156	2167	2177	2187	2197	2208
.22	.2218	2228	2238	2249	2259	2269	2279	2290	2300	2310
.23	.2320	2331	2341	2351	2361	2372	2382	2392	2403	2413
.24	.2423	2433	2444	2454	2464	2475	2485	2495	2505	2516
.25	.2526	2536	2547	2557	2567	2578	2588	2598	2609	2619
.26	.2629	2640	2650	2660	2671	2681	2691	2702	2712	2723
.27	.2733	2743	2754	2764	2774	2785	2795	2806	2816	2826
.28	.2837	2847	2858	2868	2878	2889	2899	2910	2920	2930
.29	.2941	2951	2962	2972	2983	2993	3003	3014	3024	3035
.30	.3045	3056	3066	3077	3087	3098	3108	3118	3129	3139
.31	.3150	3160	3171	3181	3192	3202	3213	3223	3234	3244
.32	.3255	3265	3276	3286	3297	3308	3318	3329	3339	3350
.33	.3360	3371	3381	3392	3402	3413	3424	3434	3445	3455
.34	.3466	3476	3487	3498	3508	3519	3529	3540	3551	3561
.35	.3572	3583	3593	3604	3614	3625	3636	3646	3657	3668
.36	.3678	3689	3700	3710	3721	3732	3742	3753	3764	3774
.37	.3785	3796	3806	3817	3828	3839	3849	3860	3871	3881
.38	.3892	3903	3914	3924	3935	3946	3957	3967	3978	3989
.39	.4000	4010	4021	4032	4043	4054	4064	4075	4086	4097
.40	.4108	4118	4129	4140	4151	4162	4172	4183	4194	4205
.41	.4216	4227	4238	4248	4259	4270	4281	4292	4303	4314
.42	.4325	4335	4346	4357	4368	4379	4390	4401	4412	4423
.43	.4434	4445	4456	4467	4478	4488	4499	4510	4521	4532
.44	.4543	4554	4565	4576	4587	4598	4609	4620	4631	4642
.45	.4653	4664	4675	4687	4698	4709	4720	4731	4742	4753
.46	.4764	4775	4786	4797	4808	4819	4830	4842	4853	4864
.47	.4875	4886	4897	4908	4919	4931	4942	4953	4964	4975
.48	.4986	4998	5009	5020	5031	5042	5054	5065	5076	5087
.49	.5098	5110	5121	5132	5143	5155	5166	5177	5188	5200

TABLE XV. $\cosh x$

x	0	1	2	3	4	5	6	7	8	9
.00	1.0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
.01	1.0001	0001	0001	0001	0001	0001	0001	0001	0002	0002
.02	1.0002	0002	0002	0003	0003	0003	0003	0004	0004	0004
.03	1.0005	0005	0005	0005	0006	0006	0006	0007	0007	0008
.04	1.0008	0008	0009	0009	0010	0010	0011	0011	0012	0012
.05	1.0013	0013	0014	0014	0015	0015	0016	0016	0017	0017
.06	1.0018	0019	0019	0020	0020	0021	0022	0022	0023	0024
.07	1.0025	0025	0026	0027	0027	0028	0029	0030	0030	0031
.08	1.0032	0033	0034	0034	0035	0036	0037	0038	0039	0040
.09	1.0041	0041	0042	0043	0044	0045	0046	0047	0048	0049
.10	1.0050	0051	0052	0053	0054	0055	0056	0057	0058	0059
.11	1.0061	0062	0063	0064	0065	0066	0067	0069	0070	0071
.12	1.0072	0073	0075	0076	0077	0078	0079	0081	0082	0083
.13	1.0085	0086	0087	0089	0090	0091	0093	0094	0095	0097
.14	1.0098	0100	0101	0102	0104	0105	0107	0108	0110	0111
.15	1.0113	0114	0116	0117	0119	0120	0122	0123	0125	0127
.16	1.0128	0130	0132	0133	0135	0136	0138	0140	0141	0143
.17	1.0145	0147	0148	0150	0152	0154	0155	0157	0159	0161
.18	1.0162	0164	0166	0168	0170	0172	0173	0175	0177	0179
.19	1.0181	0183	0185	0187	0189	0191	0193	0195	0197	0199
.20	1.0201	0203	0205	0207	0209	0211	0213	0215	0217	0219
.21	1.0221	0223	0226	0228	0230	0232	0234	0236	0239	0241
.22	1.0243	0245	0247	0250	0252	0254	0256	0259	0261	0263
.23	1.0266	0268	0270	0273	0275	0277	0280	0282	0285	0287
.24	1.0289	0292	0294	0297	0299	0302	0304	0307	0309	0312
.25	1.0314	0317	0319	0322	0324	0327	0329	0332	0335	0337
.26	1.0340	0343	0345	0348	0351	0353	0356	0359	0361	0364
.27	1.0367	0369	0372	0375	0378	0381	0383	0386	0389	0392
.28	1.0395	0397	0400	0403	0406	0409	0412	0415	0418	0421
.29	1.0423	0426	0429	0432	0435	0438	0441	0444	0447	0450
.30	1.0453	0456	0459	0463	0466	0469	0472	0475	0478	0481
.31	1.0484	0488	0491	0494	0497	0500	0503	0507	0510	0513
.32	1.0516	0520	0523	0526	0529	0533	0536	0539	0543	0546
.33	1.0549	0553	0556	0560	0563	0566	0570	0573	0577	0580
.34	1.0584	0587	0591	0594	0598	0601	0605	0608	0612	0615
.35	1.0619	0622	0626	0630	0633	0637	0640	0644	0648	0651
.36	1.0655	0659	0662	0666	0670	0674	0677	0681	0685	0689
.37	1.0692	0696	0700	0704	0708	0711	0715	0719	0723	0727
.38	1.0731	0735	0739	0742	0746	0750	0754	0758	0762	0766
.39	1.0770	0774	0778	0782	0786	0790	0794	0798	0803	0807
.40	1.0811	0815	0819	0823	0827	0831	0836	0840	0844	0848
.41	1.0852	0857	0861	0865	0869	0874	0878	0882	0886	0891
.42	1.0895	0899	0904	0908	0912	0917	0921	0926	0930	0934
.43	1.0939	0943	0948	0952	0957	0961	0966	0970	0975	0979
.44	1.0984	0988	0993	0997	1002	1007	1011	1016	1020	1025
.45	1.1030	1034	1039	1044	1048	1053	1058	1063	1067	1072
.46	1.1077	1082	1086	1091	1096	1101	1106	1110	1115	1120
.47	1.1125	1130	1135	1140	1145	1149	1154	1159	1164	1169
.48	1.1174	1179	1184	1189	1194	1199	1204	1209	1215	1220
.49	1.1225	1230	1235	1240	1245	1250	1256	1261	1266	1271

TABLE XV. $\sinh x$

x	0	1	2	3	4	5	6	7	8	9
.50	.5211	5222	5234	5245	5256	5267	5279	5290	5301	5313
.51	.5324	5335	5347	5358	5369	5381	5392	5403	5415	5426
.52	.5438	5449	5460	5472	5483	5495	5506	5517	5529	5540
.53	.5552	5563	5575	5586	5597	5609	5620	5632	5643	5655
.54	.5666	5678	5689	5701	5712	5724	5735	5747	5758	5770
.55	.5782	5793	5805	5816	5828	5839	5851	5863	5874	5886
.56	.5897	5909	5921	5932	5944	5955	5967	5979	5990	6002
.57	.6014	6025	6037	6049	6060	6072	6084	6096	6107	6119
.58	.6131	6142	6154	6166	6178	6189	6201	6213	6225	6237
.59	.6248	6260	6272	6284	6296	6307	6319	6331	6343	6355
.60	.6367	6378	6390	6402	6414	6426	6438	6450	6462	6473
.61	.6485	6497	6509	6521	6533	6545	6557	6569	6581	6593
.62	.6605	6617	6629	6641	6653	6665	6677	6689	6701	6713
.63	.6725	6737	6749	6761	6773	6785	6798	6810	6822	6834
.64	.6846	6858	6870	6882	6894	6907	6919	6931	6943	6955
.65	.6967	6980	6992	7004	7016	7029	7041	7053	7065	7077
.66	.7090	7102	7114	7127	7139	7151	7163	7176	7188	7200
.67	.7213	7225	7237	7250	7262	7274	7287	7299	7312	7324
.68	.7336	7349	7361	7374	7386	7398	7411	7423	7436	7448
.69	.7461	7473	7486	7498	7511	7523	7536	7548	7561	7573
.70	.7586	7598	7611	7624	7636	7649	7661	7674	7686	7699
.71	.7712	7724	7737	7750	7762	7775	7788	7800	7813	7826
.72	.7838	7851	7864	7877	7889	7902	7915	7928	7940	7953
.73	.7966	7979	7991	8004	8017	8030	8043	8056	8068	8081
.74	.8094	8107	8120	8133	8146	8159	8171	8184	8197	8210
.75	.8223	8236	8249	8262	8275	8288	8301	8314	8327	8340
.76	.8353	8366	8379	8392	8405	8418	8431	8444	8458	8471
.77	.8484	8497	8510	8523	8536	8549	8563	8576	8589	8602
.78	.8615	8629	8642	8655	8668	8681	8695	8708	8721	8734
.79	.8748	8761	8774	8788	8801	8814	8828	8841	8854	8868
.80	.8881	8894	8908	8921	8935	8948	8961	8975	8988	9002
.81	.9015	9029	9042	9056	9069	9083	9096	9110	9123	9137
.82	.9150	9164	9177	9191	9205	9218	9232	9245	9259	9273
.83	.9286	9300	9314	9327	9341	9355	9368	9382	9396	9410
.84	.9423	9437	9451	9465	9478	9492	9506	9520	9534	9547
.85	.9561	9575	9589	9603	9617	9630	9644	9658	9672	9686
.86	.9700	9714	9728	9742	9756	9770	9784	9798	9812	9826
.87	.9840	9854	9868	9882	9896	9910	9924	9938	9952	9966
.88	.9981	9995	*0009	*0023	*0037	*0051	*0066	*0080	*0094	*0108
.89	1.0122	0137	0151	0165	0179	0194	0208	0222	0237	0251
.90	1.0265	0280	0294	0308	0323	0337	0351	0366	0380	0395
.91	1.0409	0423	0438	0452	0467	0481	0496	0510	0525	0539
.92	1.0554	0568	0583	0598	0612	0627	0641	0656	0671	0685
.93	1.0700	0714	0729	0744	0758	0773	0788	0803	0817	0832
.94	1.0847	0862	0876	0891	0906	0921	0935	0950	0965	0980
.95	1.0995	1010	1025	1039	1054	1069	1084	1099	1114	1129
.96	1.1144	1159	1174	1189	1204	1219	1234	1249	1264	1279
.97	1.1294	1309	1324	1340	1355	1370	1385	1400	1415	1431
.98	1.1446	1461	1476	1491	1507	1522	1537	1552	1568	1583
.99	1.1598	1614	1629	1644	1660	1675	1690	1706	1721	1737

TABLE XV. cosh x

x	0	1	2	3	4	5	6	7	8	9
.50	1.1276	1281	1287	1292	1297	1302	1308	1313	1318	1324
.51	1.1329	1334	1340	1345	1350	1356	1361	1366	1372	1377
.52	1.1383	1388	1394	1399	1405	1410	1416	1421	1427	1432
.53	1.1438	1443	1449	1454	1460	1466	1471	1477	1482	1488
.54	1.1494	1499	1505	1511	1517	1522	1528	1534	1539	1545
.55	1.1551	1557	1563	1568	1574	1580	1586	1592	1598	1604
.56	1.1609	1615	1621	1627	1633	1639	1645	1651	1657	1663
.57	1.1669	1675	1681	1687	1693	1699	1705	1711	1717	1724
.58	1.1730	1736	1742	1748	1754	1760	1767	1773	1779	1785
.59	1.1792	1798	1804	1810	1817	1823	1829	1836	1842	1848
.60	1.1855	1861	1867	1874	1880	1887	1893	1900	1906	1912
.61	1.1919	1925	1932	1938	1945	1951	1958	1965	1971	1978
.62	1.1984	1991	1998	2004	2011	2018	2024	2031	2038	2044
.63	1.2051	2058	2064	2071	2078	2085	2092	2098	2105	2112
.64	1.2119	2126	2133	2139	2146	2153	2160	2167	2174	2181
.65	1.2188	2195	2202	2209	2216	2223	2230	2237	2244	2251
.66	1.2258	2265	2272	2280	2287	2294	2301	2308	2315	2323
.67	1.2330	2337	2344	2351	2359	2366	2373	2381	2388	2395
.68	1.2402	2410	2417	2425	2432	2439	2447	2454	2462	2469
.69	1.2476	2484	2491	2499	2506	2514	2521	2529	2537	2544
.70	1.2552	2559	2567	2575	2582	2590	2597	2605	2613	2620
.71	1.2628	2636	2644	2651	2659	2667	2675	2682	2690	2698
.72	1.2706	2714	2722	2729	2737	2745	2753	2761	2769	2777
.73	1.2785	2793	2801	2809	2817	2825	2833	2841	2849	2857
.74	1.2865	2873	2881	2890	2898	2906	2914	2922	2930	2939
.75	1.2947	2955	2963	2972	2980	2988	2996	3005	3013	3021
.76	1.3030	3038	3046	3055	3063	3072	3080	3089	3097	3105
.77	1.3114	3122	3131	3139	3148	3156	3165	3174	3182	3191
.78	1.3199	3208	3217	3225	3234	3243	3251	3260	3269	3277
.79	1.3286	3295	3304	3313	3321	3330	3339	3348	3357	3365
.80	1.3374	3383	3392	3401	3410	3419	3428	3437	3446	3455
.81	1.3464	3473	3482	3491	3500	3509	3518	3527	3536	3546
.82	1.3555	3564	3573	3582	3591	3601	3610	3619	3628	3638
.83	1.3647	3656	3665	3675	3684	3693	3703	3712	3722	3731
.84	1.3740	3750	3759	3769	3778	3788	3797	3807	3816	3826
.85	1.3835	3845	3854	3864	3874	3883	3893	3903	3912	3922
.86	1.3932	3941	3951	3961	3971	3980	3990	4000	4010	4019
.87	1.4029	4039	4049	4059	4069	4079	4089	4099	4108	4118
.88	1.4128	4138	4148	4158	4168	4178	4189	4199	4209	4219
.89	1.4229	4239	4249	4259	4270	4280	4290	4300	4310	4321
.90	1.4331	4341	4351	4362	4372	4382	4393	4403	4413	4424
.91	1.4434	4445	4455	4466	4476	4486	4497	4507	4518	4529
.92	1.4539	4550	4560	4571	4581	4592	4603	4613	4624	4635
.93	1.4645	4656	4667	4677	4688	4699	4710	4721	4731	4742
.94	1.4753	4764	4775	4786	4797	4807	4818	4829	4840	4851
.95	1.4862	4873	4884	4895	4906	4917	4928	4940	4951	4962
.96	1.4973	4984	4995	5006	5018	5029	5040	5051	5063	5074
.97	1.5085	5096	5108	5119	5130	5142	5153	5165	5176	5187
.98	1.5199	5210	5222	5233	5245	5256	5268	5279	5291	5302
.99	1.5314	5326	5337	5349	5361	5372	5384	5396	5407	5419

TABLE XV. $\sinh x$

x	0	1	2	3	4	5	6	7	8	9
1.00	1.1752	1767	1783	1798	1814	1829	1845	1860	1876	1891
1.01	1.1907	1922	1938	1954	1969	1985	2000	2016	2032	2047
1.02	1.2063	2079	2094	2110	2126	2141	2157	2173	2189	2205
1.03	1.2220	2236	2252	2268	2284	2299	2315	2331	2347	2363
1.04	1.2379	2395	2411	2427	2443	2459	2475	2491	2507	2523
1.05	1.2539	2555	2571	2587	2603	2619	2635	2651	2667	2683
1.06	1.2700	2716	2732	2748	2764	2781	2797	2813	2829	2846
1.07	1.2862	2878	2894	2911	2927	2943	2960	2976	2993	3009
1.08	1.3025	3042	3058	3075	3091	3108	3124	3141	3157	3174
1.09	1.3190	3207	3223	3240	3257	3273	3290	3306	3323	3340
1.10	1.3356	3373	3390	3407	3423	3440	3457	3474	3490	3507
1.11	1.3524	3541	3558	3575	3591	3608	3625	3642	3659	3676
1.12	1.3693	3710	3727	3744	3761	3778	3795	3812	3829	3846
1.13	1.3863	3880	3897	3914	3932	3949	3966	3983	4000	4018
1.14	1.4035	4052	4069	4087	4104	4121	4138	4156	4173	4190
1.15	1.4208	4225	4243	4260	4277	4295	4312	4330	4347	4365
1.16	1.4382	4400	4417	4435	4452	4470	4488	4505	4523	4540
1.17	1.4558	4576	4593	4611	4629	4647	4664	4682	4700	4718
1.18	1.4735	4753	4771	4789	4807	4825	4843	4860	4878	4896
1.19	1.4914	4932	4950	4968	4986	5004	5022	5040	5058	5077
1.20	1.5095	5113	5131	5149	5167	5185	5204	5222	5240	5258
1.21	1.5276	5295	5313	5331	5350	5368	5386	5405	5423	5441
1.22	1.5460	5478	5497	5515	5534	5552	5571	5589	5608	5626
1.23	1.5645	5663	5682	5700	5719	5738	5756	5775	5794	5812
1.24	1.5831	5850	5869	5887	5906	5925	5944	5963	5981	6000
1.25	1.6019	6038	6057	6076	6095	6114	6133	6152	6171	6190
1.26	1.6209	6228	6247	6266	6285	6304	6323	6343	6362	6381
1.27	1.6400	6419	6439	6458	6477	6496	6516	6535	6554	6574
1.28	1.6593	6612	6632	6651	6671	6690	6710	6729	6749	6768
1.29	1.6788	6807	6827	6846	6866	6885	6905	6925	6944	6964
1.30	1.6984	7004	7023	7043	7063	7083	7102	7122	7142	7162
1.31	1.7182	7202	7222	7241	7261	7281	7301	7321	7341	7361
1.32	1.7381	7401	7422	7442	7462	7482	7502	7522	7542	7563
1.33	1.7583	7603	7623	7644	7664	7684	7705	7725	7745	7766
1.34	1.7786	7806	7827	7847	7868	7888	7909	7929	7950	7970
1.35	1.7991	8012	8032	8053	8073	8094	8115	8135	8156	8177
1.36	1.8198	8218	8239	8260	8281	8302	8323	8343	8364	8385
1.37	1.8406	8427	8448	8469	8490	8511	8532	8553	8574	8595
1.38	1.8617	8638	8659	8680	8701	8723	8744	8765	8786	8808
1.39	1.8829	8850	8872	8893	8914	8936	8957	8979	9000	9022
1.40	1.9043	9065	9086	9108	9129	9151	9172	9194	9216	9237
1.41	1.9259	9281	9303	9324	9346	9368	9390	9411	9433	9455
1.42	1.9477	9499	9521	9543	9565	9587	9609	9631	9653	9675
1.43	1.9697	9719	9741	9763	9785	9808	9830	9852	9874	9897
1.44	1.9919	9941	9963	9986	*0008	*0031	*0053	*0075	*0098	*0120
1.45	2.0143	0165	0188	0210	0233	0255	0278	0301	0323	0346
1.46	2.0369	0391	0414	0437	0460	0482	0505	0528	0551	0574
1.47	2.0597	0619	0642	0665	0688	0711	0734	0757	0780	0803
1.48	2.0827	0850	0873	0896	0919	0942	0966	0989	1012	1035
1.49	2.1059	1082	1105	1129	1152	1175	1199	1222	1246	1269

TABLE XV. cosh x

x	0	1	2	3	4	5	6	7	8	9
1.00	1.5431	5443	5454	5466	5478	5490	5502	5513	5525	5537
1.01	1.5549	5561	5573	5585	5597	5609	5621	5633	5645	5657
1.02	1.5669	5681	5693	5705	5717	5729	5742	5754	5766	5778
1.03	1.5790	5803	5815	5827	5839	5852	5864	5876	5889	5901
1.04	1.5913	5926	5938	5951	5963	5975	5988	6000	6013	6025
1.05	1.6038	6050	6063	6076	6088	6101	6113	6126	6139	6151
1.06	1.6164	6177	6190	6202	6215	6228	6241	6253	6266	6279
1.07	1.6292	6305	6318	6331	6344	6356	6369	6382	6395	6408
1.08	1.6421	6434	6447	6461	6474	6487	6500	6513	6526	6539
1.09	1.6552	6566	6579	6592	6605	6619	6632	6645	6659	6672
1.10	1.6685	6699	6712	6725	6739	6752	6766	6779	6793	6806
1.11	1.6820	6833	6847	6860	6874	6887	6901	6915	6928	6942
1.12	1.6956	6969	6983	6997	7011	7024	7038	7052	7066	7080
1.13	1.7093	7107	7121	7135	7149	7163	7177	7191	7205	7219
1.14	1.7233	7247	7261	7275	7289	7303	7317	7332	7346	7360
1.15	1.7374	7388	7403	7417	7431	7445	7460	7474	7488	7503
1.16	1.7517	7531	7546	7560	7575	7589	7604	7618	7633	7647
1.17	1.7662	7676	7691	7706	7720	7735	7749	7764	7779	7794
1.18	1.7808	7823	7838	7853	7867	7882	7897	7912	7927	7942
1.19	1.7957	7971	7986	8001	8016	8031	8046	8061	8076	8091
1.20	1.8107	8122	8137	8152	8167	8182	8197	8213	8228	8243
1.21	1.8258	8274	8289	8304	8320	8335	8350	8366	8381	8397
1.22	1.8412	8428	8443	8459	8474	8490	8505	8521	8536	8552
1.23	1.8568	8583	8599	8615	8630	8646	8662	8678	8693	8709
1.24	1.8725	8741	8757	8773	8788	8804	8820	8836	8852	8868
1.25	1.8884	8900	8916	8932	8948	8965	8981	8997	9013	9029
1.26	1.9045	9062	9078	9094	9110	9127	9143	9159	9176	9192
1.27	1.9208	9225	9241	9258	9274	9291	9307	9324	9340	9357
1.28	1.9373	9390	9407	9423	9440	9457	9473	9490	9507	9524
1.29	1.9540	9557	9574	9591	9608	9624	9641	9658	9675	9692
1.30	1.9709	9726	9743	9760	9777	9794	9811	9829	9846	9863
1.31	1.9880	9897	9914	9932	9949	9966	9983	*0001	*0018	*0035
1.32	2.0053	0070	0088	0105	0122	0140	0157	0175	0192	0210
1.33	2.0228	0245	0263	0280	0298	0316	0333	0351	0369	0387
1.34	2.0404	0422	0440	0458	0476	0494	0512	0529	0547	0565
1.35	2.0583	0601	0619	0637	0655	0674	0692	0710	0728	0746
1.36	2.0764	0782	0801	0819	0837	0856	0874	0892	0911	0929
1.37	2.0947	0966	0984	1003	1021	1040	1058	1077	1095	1114
1.38	2.1132	1151	1170	1188	1207	1226	1244	1263	1282	1301
1.39	2.1320	1338	1357	1376	1395	1414	1433	1452	1471	1490
1.40	2.1509	1528	1547	1566	1585	1604	1624	1643	1662	1681
1.41	2.1700	1720	1739	1758	1778	1797	1816	1836	1855	1875
1.42	2.1894	1914	1933	1953	1972	1992	2011	2031	2051	2070
1.43	2.2090	2110	2129	2149	2169	2189	2209	2228	2248	2268
1.44	2.2288	2308	2328	2348	2368	2388	2408	2428	2448	2468
1.45	2.2488	2509	2529	2549	2569	2589	2610	2630	2650	2671
1.46	2.2691	2711	2732	2752	2773	2793	2814	2834	2855	2875
1.47	2.2896	2916	2937	2958	2978	2999	3020	3041	3061	3082
1.48	2.3103	3124	3145	3166	3186	3207	3228	3249	3270	3291
1.49	2.3312	3333	3355	3376	3397	3418	3439	3460	3482	3503

TABLE XV. sinh x

x	0	1	2	3	4	5	6	7	8	9
1.50	2.1293	1316	1340	1363	1387	1411	1434	1458	1482	1505
1.51	2.1529	1553	1577	1600	1624	1648	1672	1696	1720	1744
1.52	2.1768	1792	1816	1840	1864	1888	1912	1936	1960	1984
1.53	2.2008	2032	2057	2081	2105	2129	2154	2178	2202	2227
1.54	2.2251	2275	2300	2324	2349	2373	2398	2422	2447	2472
1.55	2.2496	2521	2545	2570	2595	2619	2644	2669	2694	2719
1.56	2.2743	2768	2793	2818	2843	2868	2893	2918	2943	2968
1.57	2.2993	3018	3043	3068	3093	3119	3144	3169	3194	3220
1.58	2.3245	3270	3296	3321	3346	3372	3397	3423	3448	3474
1.59	2.3499	3525	3550	3576	3601	3627	3653	3678	3704	3730
1.60	2.3756	3781	3807	3833	3859	3885	3911	3937	3963	3989
1.61	2.4015	4041	4067	4093	4119	4145	4171	4197	4223	4250
1.62	2.4276	4302	4329	4355	4381	4408	4434	4460	4487	4513
1.63	2.4540	4566	4593	4619	4646	4673	4699	4726	4753	4779
1.64	2.4806	4833	4859	4886	4913	4940	4967	4994	5021	5048
1.65	2.5075	5102	5129	5156	5183	5210	5237	5264	5291	5319
1.66	2.5346	5373	5400	5428	5455	5482	5510	5537	5565	5592
1.67	2.5620	5647	5675	5702	5730	5757	5785	5813	5840	5868
1.68	2.5896	5924	5951	5979	6007	6035	6063	6091	6119	6147
1.69	2.6175	6203	6231	6259	6287	6315	6343	6372	6400	6428
1.70	2.6456	6485	6513	6541	6570	6598	6626	6655	6683	6712
1.71	2.6740	6769	6798	6826	6855	6884	6912	6941	6970	6999
1.72	2.7027	7056	7085	7114	7143	7172	7201	7230	7259	7288
1.73	2.7317	7346	7375	7404	7433	7463	7492	7521	7550	7580
1.74	2.7609	7638	7668	7697	7727	7756	7786	7815	7845	7875
1.75	2.7904	7934	7963	7993	8023	8053	8082	8112	8142	8172
1.76	2.8202	8232	8262	8292	8322	8352	8382	8412	8442	8472
1.77	2.8503	8533	8563	8593	8624	8654	8684	8715	8745	8776
1.78	2.8806	8837	8867	8898	8928	8959	8990	9020	9051	9082
1.79	2.9112	9143	9174	9205	9236	9267	9298	9329	9360	9391
1.80	2.9422	9453	9484	9515	9546	9577	9609	9640	9671	9703
1.81	2.9734	9765	9797	9828	9860	9891	9923	9954	9986	*0018
1.82	3.0049	0081	0113	0144	0176	0208	0240	0272	0303	0335
1.83	3.0367	0399	0431	0463	0495	0528	0560	0592	0624	0656
1.84	3.0689	0721	0753	0786	0818	0850	0883	0915	0948	0980
1.85	3.1013	1046	1078	1111	1144	1176	1209	1242	1275	1307
1.86	3.1340	1373	1406	1439	1472	1505	1538	1571	1605	1638
1.87	3.1671	1704	1737	1771	1804	1837	1871	1904	1938	1971
1.88	3.2005	2038	2072	2105	2139	2173	2206	2240	2274	2308
1.89	3.2341	2375	2409	2443	2477	2511	2545	2579	2613	2647
1.90	3.2682	2716	2750	2784	2819	2853	2887	2922	2956	2991
1.91	3.3025	3060	3094	3129	3163	3198	3233	3267	3302	3337
1.92	3.3372	3407	3441	3476	3511	3546	3581	3616	3652	3687
1.93	3.3722	3757	3792	3827	3863	3898	3933	3969	4004	4040
1.94	3.4075	4111	4146	4182	4218	4253	4289	4325	4360	4396
1.95	3.4432	4468	4504	4540	4576	4612	4648	4684	4720	4756
1.96	3.4792	4829	4865	4901	4937	4974	5010	5047	5083	5120
1.97	3.5156	5193	5229	5266	5303	5339	5376	5413	5450	5486
1.98	3.5523	5560	5597	5634	5671	5708	5745	5783	5820	5857
1.99	3.5894	5931	5969	6006	6044	6081	6118	6156	6193	6231

TABLE XV. cosh x

x	0	1	2	3	4	5	6	7	8	9
1.50	2.3524	3545	3567	3588	3609	3631	3652	3674	3695	3717
1.51	2.3738	3760	3781	3803	3825	3846	3868	3889	3911	3933
1.52	2.3955	3976	3998	4020	4042	4064	4086	4108	4130	4152
1.53	2.4174	4196	4218	4240	4262	4284	4306	4328	4350	4373
1.54	2.4395	4417	4439	4462	4484	4506	4529	4551	4574	4596
1.55	2.4619	4641	4664	4686	4709	4731	4754	4777	4799	4822
1.56	2.4845	4868	4890	4913	4936	4959	4982	5005	5028	5050
1.57	2.5073	5096	5120	5143	5166	5189	5212	5235	5258	5281
1.58	2.5305	5328	5351	5375	5398	5421	5445	5468	5491	5515
1.59	2.5538	5562	5585	5609	5633	5656	5680	5703	5727	5751
1.60	2.5775	5798	5822	5846	5870	5894	5918	5942	5966	5989
1.61	2.6013	6038	6062	6086	6110	6134	6158	6182	6206	6231
1.62	2.6255	6279	6304	6328	6352	6377	6401	6426	6450	6474
1.63	2.6499	6524	6548	6573	6597	6622	6647	6671	6696	6721
1.64	2.6746	6771	6795	6820	6845	6870	6895	6920	6945	6970
1.65	2.6995	7020	7045	7070	7096	7121	7146	7171	7197	7222
1.66	2.7247	7273	7298	7323	7349	7374	7400	7425	7451	7476
1.67	2.7502	7528	7553	7579	7605	7631	7656	7682	7708	7734
1.68	2.7760	7786	7811	7837	7863	7889	7916	7942	7968	7994
1.69	2.8020	8046	8072	8099	8125	8151	8178	8204	8230	8257
1.70	2.8283	8310	8336	8363	8389	8416	8442	8469	8496	8522
1.71	2.8549	8576	8603	8629	8656	8683	8710	8737	8764	8791
1.72	2.8818	8845	8872	8899	8926	8953	8981	9008	9035	9062
1.73	2.9090	9117	9144	9172	9199	9227	9254	9282	9309	9337
1.74	2.9364	9392	9420	9447	9475	9503	9531	9558	9586	9614
1.75	2.9642	9670	9698	9726	9754	9782	9810	9838	9866	9894
1.76	2.9922	9951	9979	*0007	*0035	*0064	*0092	*0121	*0149	*0177
1.77	3.0206	0234	0263	0292	0320	0349	0377	0406	0435	0464
1.78	3.0492	0521	0550	0579	0608	0637	0666	0695	0724	0753
1.79	3.0782	0811	0840	0870	0899	0928	0957	0987	1016	1045
1.80	3.1075	1104	1134	1163	1193	1222	1252	1281	1311	1341
1.81	3.1371	1400	1430	1460	1490	1520	1549	1579	1609	1639
1.82	3.1669	1699	1730	1760	1790	1820	1850	1881	1911	1941
1.83	3.1972	2002	2032	2063	2093	2124	2154	2185	2215	2246
1.84	3.2277	2307	2338	2369	2400	2431	2461	2492	2523	2554
1.85	3.2585	2616	2647	2678	2710	2741	2772	2803	2834	2866
1.86	3.2897	2928	2960	2991	3023	3054	3086	3117	3149	3180
1.87	3.3212	3244	3276	3307	3339	3371	3403	3435	3467	3498
1.88	3.3530	3562	3595	3627	3659	3691	3723	3755	3788	3820
1.89	3.3852	3885	3917	3949	3982	4014	4047	4079	4112	4145
1.90	3.4177	4210	4243	4276	4308	4341	4374	4407	4440	4473
1.91	3.4506	4539	4572	4605	4638	4671	4705	4738	4771	4804
1.92	3.4838	4871	4905	4938	4972	5005	5039	5072	5106	5140
1.93	3.5173	5207	5241	5275	5308	5342	5376	5410	5444	5478
1.94	3.5512	5546	5580	5615	5649	5683	5717	5752	5786	5820
1.95	3.5855	5889	5924	5958	5993	6027	6062	6097	6131	6166
1.96	3.6201	6236	6271	6305	6340	6375	6410	6445	6480	6516
1.97	3.6551	6586	6621	6656	6692	6727	6762	6798	6833	6869
1.98	3.6904	6940	6975	7011	7046	7082	7118	7154	7189	7225
1.99	3.7261	7297	7333	7369	7405	7441	7477	7513	7549	7586

TABLE XV. $\sinh x$

x	0	1	2	3	4	5	6	7	8	9
2.00	3.6269	6306	6344	6382	6419	6457	6495	6533	6571	6609
2.01	3.6647	6685	6723	6761	6799	6837	6875	6913	6952	6990
2.02	3.7028	7067	7105	7144	7182	7221	7259	7298	7336	7375
2.03	3.7414	7453	7491	7530	7569	7608	7647	7686	7725	7764
2.04	3.7803	7842	7881	7920	7960	7999	8038	8078	8117	8156
2.05	3.8196	8235	8275	8314	8354	8394	8433	8473	8513	8553
2.06	3.8593	8632	8672	8712	8752	8792	8832	8873	8913	8953
2.07	3.8993	9033	9074	9114	9155	9195	9235	9276	9316	9357
2.08	3.9398	9438	9479	9520	9561	9601	9642	9683	9724	9765
2.09	3.9806	9847	9888	9929	9971	*0012	*0053	*0094	*0136	*0177
2.10	4.0219	0260	0302	0343	0385	0426	0468	0510	0551	0593
2.11	4.0635	0677	0719	0761	0803	0845	0887	0929	0971	1013
2.12	4.1056	1098	1140	1182	1225	1267	1310	1352	1395	1437
2.13	4.1480	1523	1566	1608	1651	1694	1737	1780	1823	1866
2.14	4.1909	1952	1995	2038	2082	2125	2168	2212	2255	2298
2.15	4.2342	2385	2429	2473	2516	2560	2604	2647	2691	2735
2.16	4.2779	2823	2867	2911	2955	2999	3043	3088	3132	3176
2.17	4.3221	3265	3309	3354	3398	3443	3487	3532	3577	3622
2.18	4.3666	3711	3756	3801	3846	3891	3936	3981	4026	4071
2.19	4.4116	4162	4207	4252	4298	4343	4389	4434	4480	4525
2.20	4.4571	4617	4662	4708	4754	4800	4846	4892	4938	4984
2.21	4.5030	5076	5122	5169	5215	5261	5308	5354	5401	5447
2.22	4.5494	5540	5587	5634	5680	5727	5774	5821	5868	5915
2.23	4.5962	6009	6056	6103	6150	6197	6245	6292	6339	6387
2.24	4.6434	6482	6529	6577	6625	6672	6720	6768	6816	6864
2.25	4.6912	6960	7008	7056	7104	7152	7200	7249	7297	7345
2.26	4.7394	7442	7491	7539	7588	7636	7685	7734	7783	7832
2.27	4.7880	7929	7978	8027	8076	8126	8175	8224	8273	8323
2.28	4.8372	8421	8471	8520	8570	8620	8669	8719	8769	8818
2.29	4.8868	8918	8968	9018	9068	9118	9169	9219	9269	9319
2.30	4.9370	9420	9470	9521	9572	9622	9673	9723	9774	9825
2.31	4.9876	9927	9978	*0029	*0080	*0131	*0182	*0233	*0284	*0336
2.32	5.0387	0438	0490	0541	0593	0644	0696	0748	0800	0851
2.33	5.0903	0955	1007	1059	1111	1163	1215	1268	1320	1372
2.34	5.1425	1477	1529	1582	1635	1687	1740	1793	1845	1898
2.35	5.1951	2004	2057	2110	2163	2216	2269	2323	2376	2429
2.36	5.2483	2536	2590	2643	2697	2750	2804	2858	2912	2966
2.37	5.3020	3074	3128	3182	3236	3290	3344	3399	3453	3507
2.38	5.3562	3616	3671	3725	3780	3835	3890	3944	3999	4054
2.39	5.4109	4164	4219	4275	4330	4385	4440	4496	4551	4607
2.40	5.4662	4718	4774	4829	4885	4941	4997	5053	5109	5165
2.41	5.5221	5277	5333	5389	5446	5502	5558	5615	5671	5728
2.42	5.5785	5841	5898	5955	6012	6069	6126	6183	6240	6297
2.43	5.6354	6411	6469	6526	6584	6641	6699	6756	6814	6872
2.44	5.6929	6987	7045	7103	7161	7219	7277	7335	7394	7452
2.45	5.7510	7569	7627	7686	7744	7803	7862	7920	7979	8038
2.46	5.8097	8156	8215	8274	8333	8392	8452	8511	8570	8630
2.47	5.8689	8749	8808	8868	8928	8988	9048	9107	9167	9228
2.48	5.9288	9348	9408	9468	9529	9589	9649	9710	9771	9831
2.49	5.9892	9953	*0013	*0074	*0135	*0196	*0257	*0318	*0380	*0441

TABLE XV. $\cosh x$

x	0	1	2	3	4	5	6	7	8	9
2.00	3.7622	7658	7695	7731	7767	7804	7840	7877	7913	7950
2.01	3.7987	8023	8060	8097	8133	8170	8207	8244	8281	8318
2.02	3.8355	8392	8429	8466	8503	8541	8578	8615	8652	8690
2.03	3.8727	8765	8802	8840	8877	8915	8952	8990	9028	9065
2.04	3.9103	9141	9179	9217	9255	9293	9331	9369	9407	9445
2.05	3.9483	9521	9560	9598	9636	9675	9713	9752	9790	9829
2.06	3.9867	9906	9944	9983	*0022	*0061	*0099	*0138	*0177	*0216
2.07	4.0255	0294	0333	0372	0411	0451	0490	0529	0568	0608
2.08	4.0647	0686	0726	0765	0805	0844	0884	0924	0963	1003
2.09	4.1043	1083	1123	1163	1203	1243	1283	1323	1363	1403
2.10	4.1443	1483	1524	1564	1604	1645	1685	1726	1766	1807
2.11	4.1847	1888	1929	1969	2010	2051	2092	2133	2174	2215
2.12	4.2256	2297	2338	2379	2420	2462	2503	2544	2586	2627
2.13	4.2669	2710	2752	2793	2835	2876	2918	2960	3002	3044
2.14	4.3085	3127	3169	3211	3253	3296	3338	3380	3422	3464
2.15	4.3507	3549	3591	3634	3676	3719	3762	3804	3847	3890
2.16	4.3932	3975	4018	4061	4104	4147	4190	4233	4276	4319
2.17	4.4362	4406	4449	4492	4536	4579	4622	4666	4709	4753
2.18	4.4797	4840	4884	4928	4972	5016	5060	5104	5148	5192
2.19	4.5236	5280	5324	5368	5412	5457	5501	5546	5590	5635
2.20	4.5679	5724	5768	5813	5858	5903	5947	5992	6037	6082
2.21	4.6127	6172	6217	6262	6308	6353	6398	6443	6489	6534
2.22	4.6580	6625	6671	6716	6762	6808	6854	6899	6945	6991
2.23	4.7037	7083	7129	7175	7221	7267	7314	7360	7406	7453
2.24	4.7499	7545	7592	7638	7685	7732	7778	7825	7872	7919
2.25	4.7966	8013	8060	8107	8154	8201	8248	8295	8343	8390
2.26	4.8437	8485	8532	8580	8627	8675	8722	8770	8818	8866
2.27	4.8914	8961	9009	9057	9105	9154	9202	9250	9298	9346
2.28	4.9395	9443	9492	9540	9589	9637	9686	9735	9783	9832
2.29	4.9881	9930	9979	*0028	*0077	*0126	*0175	*0224	*0274	*0323
2.30	5.0372	0422	0471	0521	0570	0620	0669	0719	0769	0819
2.31	5.0868	0918	0968	1018	1068	1118	1169	1219	1269	1319
2.32	5.1370	1420	1471	1521	1572	1622	1673	1724	1774	1825
2.33	5.1876	1927	1978	2029	2080	2131	2183	2234	2285	2336
2.34	5.2388	2439	2491	2542	2594	2646	2697	2749	2801	2853
2.35	5.2905	2957	3009	3061	3113	3165	3217	3270	3322	3374
2.36	5.3427	3479	3532	3585	3637	3690	3743	3796	3848	3901
2.37	5.3954	4007	4061	4114	4167	4220	4273	4327	4380	4434
2.38	5.4487	4541	4594	4648	4702	4756	4810	4864	4918	4972
2.39	5.5026	5080	5134	5188	5242	5297	5351	5406	5460	5515
2.40	5.5569	5624	5679	5734	5789	5843	5898	5953	6009	6064
2.41	5.6119	6174	6229	6285	6340	6396	6451	6507	6562	6618
2.42	5.6674	6730	6786	6842	6897	6954	7010	7066	7122	7178
2.43	5.7235	7291	7347	7404	7460	7517	7574	7630	7687	7744
2.44	5.7801	7858	7915	7972	8029	8086	8144	8201	8258	8316
2.45	5.8373	8431	8488	8546	8604	8661	8719	8777	8835	8893
2.46	5.8951	9009	9068	9126	9184	9242	9301	9359	9418	9476
2.47	5.9535	9594	9653	9711	9770	9829	9888	9947	*0007	0066
2.48	6.0125	0184	0244	0303	0363	0422	0482	0542	0601	0661
2.49	6.0721	0781	0841	0901	0961	1021	1081	1142	1202	1262

TABLE XV.

$\sinh x$

x	0	1	2	3	4	5	6	7	8	9
2.50	6.0502	0563	0625	0686	0748	0809	0871	0933	0995	1056
2.51	6.1118	1180	1242	1304	1367	1429	1491	1553	1616	1678
2.52	6.1741	1803	1866	1929	1991	2054	2117	2180	2243	2306
2.53	6.2369	2432	2496	2559	2622	2686	2749	2813	2877	2940
2.54	6.3004	3068	3132	3196	3260	3324	3388	3452	3516	3581
2.55	6.3645	3710	3774	3839	3903	3968	4033	4098	4163	4228
2.56	6.4293	4358	4423	4488	4553	4619	4684	4750	4815	4881
2.57	6.4946	5012	5078	5144	5210	5276	5342	5408	5474	5540
2.58	6.5607	5673	5740	5806	5873	5939	6006	6073	6140	6207
2.59	6.6274	6341	6408	6475	6542	6610	6677	6745	6812	6880
2.60	6.6947	7015	7083	7151	7219	7287	7355	7423	7491	7559
2.61	6.7628	7696	7764	7833	7902	7970	8039	8108	8177	8246
2.62	6.8315	8384	8453	8522	8591	8661	8730	8800	8869	8939
2.63	6.9008	9078	9148	9218	9288	9358	9428	9498	9569	9639
2.64	6.9709	9780	9850	9921	9991	*0062	*0133	*0204	*0275	*0346
2.65	7.0417	0488	0559	0631	0702	0773	0845	0917	0988	1060
2.66	7.1132	1204	1276	1348	1420	1492	1564	1636	1709	1781
2.67	7.1854	1926	1999	2072	2144	2217	2290	2363	2436	2509
2.68	7.2583	2656	2729	2803	2876	2950	3024	3097	3171	3245
2.69	7.3319	3393	3467	3541	3616	3690	3764	3839	3913	3988
2.70	7.4063	4137	4212	4287	4362	4437	4512	4588	4663	4738
2.71	7.4814	4889	4965	5040	5116	5192	5268	5344	5420	5496
2.72	7.5572	5649	5725	5801	5878	5954	6031	6108	6185	6261
2.73	7.6338	6415	6492	6570	6647	6724	6802	6879	6957	7034
2.74	7.7112	7190	7268	7346	7424	7502	7580	7658	7737	7815
2.75	7.7894	7972	8051	8129	8208	8287	8366	8445	8524	8603
2.76	7.8683	8762	8842	8921	9001	9080	9160	9240	9320	9400
2.77	7.9480	9560	9640	9721	9801	9881	9962	*0043	*0123	*0204
2.78	8.0285	0366	0447	0528	0609	0690	0772	0853	0935	1016
2.79	8.1098	1180	1262	1343	1425	1508	1590	1672	1754	1837
2.80	8.1919	2002	2084	2167	2250	2333	2416	2499	2582	2665
2.81	8.2749	2832	2915	2999	3083	3166	3250	3334	3418	3502
2.82	8.3586	3670	3755	3839	3924	4008	4093	4178	4262	4347
2.83	8.4432	4517	4602	4688	4773	4858	4944	5029	5115	5201
2.84	8.5287	5373	5459	5545	5631	5717	5803	5890	5976	6063
2.85	8.6150	6236	6323	6410	6497	6584	6672	6759	6846	6934
2.86	8.7021	7109	7197	7284	7372	7460	7548	7637	7725	7813
2.87	8.7902	7990	8079	8167	8256	8345	8434	8523	8612	8701
2.88	8.8791	8880	8970	9059	9149	9239	9328	9418	9508	9598
2.89	8.9689	9779	9869	9960	*0050	*0141	*0232	*0323	*0414	*0505
2.90	9.0596	0687	0778	0869	0961	1052	1144	1236	1328	1420
2.91	9.1512	1604	1696	1788	1881	1973	2066	2158	2251	2344
2.92	9.2437	2530	2623	2716	2809	2903	2996	3090	3184	3277
2.93	9.3371	3465	3559	3653	3748	3842	3936	4031	4125	4220
2.94	9.4315	4410	4505	4600	4695	4790	4886	4981	5077	5172
2.95	9.5268	5364	5460	5556	5652	5748	5845	5941	6037	6134
2.96	9.6231	6328	6424	6521	6619	6716	6813	6910	7008	7105
2.97	9.7203	7301	7399	7497	7595	7693	7791	7889	7988	8086
2.98	9.8185	8284	8383	8482	8581	8680	8779	8878	8978	9077
2.99	9.9177	9277	9377	9476	9576	9677	9777	9877	9978	*0078

TABLE XV. cosh x

x	0	1	2	3	4	5	6	7	8	9
2.50	6.1323	1383	1444	1505	1565	1626	1687	1748	1809	1870
2.51	6.1931	1992	2053	2115	2176	2237	2299	2360	2422	2484
2.52	6.2545	2607	2669	2731	2793	2855	2917	2979	3041	3103
2.53	6.3166	3228	3291	3353	3416	3478	3541	3604	3667	3730
2.54	6.3793	3856	3919	3982	4045	4109	4172	4235	4299	4362
2.55	6.4426	4490	4553	4617	4681	4745	4809	4873	4937	5001
2.56	6.5066	5130	5194	5259	5323	5388	5453	5517	5582	5647
2.57	6.5712	5777	5842	5907	5972	6037	6103	6168	6233	6299
2.58	6.6365	6430	6496	6562	6628	6693	6759	6825	6892	6958
2.59	6.7024	7090	7157	7223	7290	7356	7423	7490	7556	7623
2.60	6.7690	7757	7824	7891	7958	8026	8093	8160	8228	8295
2.61	6.8363	8431	8498	8566	8634	8702	8770	8838	8906	8974
2.62	6.9043	9111	9179	9248	9316	9385	9454	9523	9591	9660
2.63	6.9729	9798	9867	9937	*0006	*0075	*0145	*0214	*0284	*0353
2.64	7.0423	0493	0562	0632	0702	0772	0842	0913	0983	1053
2.65	7.1123	1194	1264	1335	1406	1476	1547	1618	1689	1760
2.66	7.1831	1902	1974	2045	2116	2188	2259	2331	2403	2474
2.67	7.2546	2618	2690	2762	2834	2906	2979	3051	3123	3196
2.68	7.3268	3341	3414	3486	3559	3632	3705	3778	3851	3925
2.69	7.3998	4071	4145	4218	4292	4365	4439	4513	4587	4661
2.70	7.4735	4809	4883	4957	5032	5106	5180	5255	5330	5404
2.71	7.5479	5554	5629	5704	5779	5854	5929	6005	6080	6155
2.72	7.6231	6307	6382	6458	6534	6610	6686	6762	6838	6914
2.73	7.6991	7067	7143	7220	7297	7373	7450	7527	7604	7681
2.74	7.7758	7835	7912	7989	8067	8144	8222	8299	8377	8455
2.75	7.8533	8611	8689	8767	8845	8923	9002	9080	9158	9237
2.76	7.9316	9394	9473	9552	9631	9710	9789	9868	9948	*0027
2.77	8.0106	0186	0266	0345	0425	0505	0585	0665	0745	0825
2.78	8.0905	0986	1066	1147	1227	1308	1388	1469	1550	1631
2.79	8.1712	1793	1875	1956	2037	2119	2200	2282	2364	2445
2.80	8.2527	2609	2691	2773	2856	2938	3020	3103	3185	3268
2.81	8.3351	3433	3516	3599	3682	3765	3849	3932	4015	4099
2.82	8.4182	4266	4350	4433	4517	4601	4685	4769	4854	4938
2.83	8.5022	5107	5191	5276	5361	5446	5530	5615	5701	5786
2.84	8.5871	5956	6042	6127	6213	6298	6384	6470	6556	6642
2.85	8.6728	6814	6901	6987	7073	7160	7247	7333	7420	7507
2.86	8.7594	7681	7768	7855	7943	8030	8118	8205	8293	8381
2.87	8.8469	8557	8645	8733	8821	8909	8998	9086	9175	9263
2.88	8.9352	9441	9530	9619	9708	9797	9886	9976	*0065	*0155
2.89	9.0244	0334	0424	0514	0604	0694	0784	0874	0965	1055
2.90	9.1146	1236	1327	1418	1509	1600	1691	1782	1874	1965
2.91	9.2056	2148	2240	2331	2423	2515	2607	2699	2791	2884
2.92	9.2976	3069	3161	3254	3347	3439	3532	3625	3719	3812
2.93	9.3905	3999	4092	4186	4279	4373	4467	4561	4655	4749
2.94	9.4844	4938	5032	5127	5222	5316	5411	5506	5601	5696
2.95	9.5791	5887	5982	6078	6173	6269	6365	6461	6557	6653
2.96	9.6749	6845	6942	7038	7135	7231	7328	7425	7522	7619
2.97	9.7716	7813	7911	8008	8106	8203	8301	8399	8497	8595
2.98	9.8693	8791	8890	8988	9087	9185	9284	9383	9482	9581
2.99	9.9680	9779	9878	9978	*0077	*0177	*0277	*0377	*0476	*0576

TABLE XV. $\sinh x$

x	0	1	2	3	4	5	6	7	8	9
3.0	10.018	10.119	10.221	10.324	10.429	10.534	10.640	10.748	10.856	10.966
3.1	11.076	11.188	11.301	11.415	11.530	11.647	11.764	11.883	12.003	12.124
3.2	12.246	12.369	12.494	12.620	12.747	12.876	13.006	13.137	13.269	13.403
3.3	13.538	13.674	13.812	13.951	14.092	14.234	14.377	14.522	14.668	14.816
3.4	14.965	15.116	15.268	15.422	15.577	15.734	15.893	16.053	16.214	16.378
3.5	16.543	16.709	16.877	17.047	17.219	17.392	17.567	17.744	17.923	18.103
3.6	18.285	18.470	18.655	18.843	19.033	19.224	19.418	19.613	19.811	20.010
3.7	20.211	20.415	20.620	20.828	21.037	21.249	21.463	21.679	21.897	22.117
3.8	22.339	22.564	22.791	23.020	23.252	23.486	23.722	23.961	24.202	24.445
3.9	24.691	24.939	25.190	25.444	25.700	25.958	26.219	26.483	26.749	27.018
4.0	27.290	27.564	27.842	28.122	28.404	28.690	28.979	29.270	29.564	29.862
4.1	30.162	30.465	30.771	31.081	31.393	31.709	32.028	32.350	32.675	33.004
4.2	33.336	33.671	34.009	34.351	34.697	35.046	35.398	35.754	36.113	36.476
4.3	36.843	37.214	37.588	37.966	38.347	38.733	39.122	39.515	39.913	40.314
4.4	40.719	41.129	41.542	41.960	42.382	42.808	43.238	43.673	44.112	44.555
4.5	45.003	45.455	45.912	46.374	46.840	47.311	47.787	48.267	48.752	49.242
4.6	49.737	50.237	50.742	51.252	51.767	52.288	52.813	53.344	53.880	54.422
4.7	54.969	55.522	56.080	56.643	57.213	57.788	58.369	58.955	59.548	60.147
4.8	60.751	61.362	61.979	62.601	63.231	63.866	64.508	65.157	65.812	66.473
4.9	67.141	67.816	68.498	69.186	69.882	70.584	71.293	72.010	72.734	73.465
5.0	74.203	74.949	75.702	76.463	77.232	78.008	78.792	79.584	80.384	81.192
5.1	82.008	82.832	83.665	84.506	85.355	86.213	87.079	87.955	88.839	89.731
5.2	90.633	91.544	92.464	93.394	94.332	95.281	96.238	97.205	98.182	99.169
5.3	100.17	101.17	102.19	103.22	104.25	105.30	106.36	107.43	108.51	109.60
5.4	110.70	111.81	112.94	114.07	115.22	116.38	117.55	118.73	119.92	121.13
5.5	122.34	123.57	124.82	126.07	127.34	128.62	129.91	131.22	132.53	133.87
5.6	135.21	136.57	137.94	139.33	140.73	142.14	143.57	145.02	146.47	147.95
5.7	149.43	150.93	152.45	153.98	155.53	157.09	158.67	160.27	161.88	163.50
5.8	165.15	166.81	168.48	170.18	171.89	173.62	175.36	177.12	178.90	180.70
5.9	182.52	184.35	186.20	188.08	189.97	191.88	193.80	195.75	197.72	199.71
6.0	201.71	203.74	205.79	207.86	209.95	212.06	214.19	216.34	218.51	220.71
6.1	222.93	225.17	227.43	229.72	232.03	234.36	236.71	239.09	241.49	243.92
6.2	246.37	248.85	251.35	253.88	256.43	259.01	261.61	264.24	266.89	269.58
6.3	272.29	275.02	277.79	280.58	283.40	286.25	289.12	292.03	294.96	297.93
6.4	300.92	303.95	307.00	310.09	313.20	316.35	319.53	322.74	325.98	329.26
6.5	332.57	335.91	339.29	342.70	346.14	349.62	353.14	356.68	360.27	363.89
6.6	367.55	371.24	374.97	378.74	382.55	386.39	390.27	394.20	398.16	402.16
6.7	406.20	410.28	414.41	418.57	422.78	427.03	431.32	435.66	440.03	444.46
6.8	448.92	453.43	457.99	462.59	467.24	471.94	476.68	481.47	486.31	491.20
6.9	496.14	501.12	506.16	511.25	516.38	521.57	526.82	532.11	537.46	542.86
7.0	548.32	553.83	559.39	565.01	570.69	576.43	582.22	588.07	593.98	599.95
7.1	605.98	612.07	618.22	624.44	630.71	637.05	643.46	649.92	656.45	663.05
7.2	669.72	676.45	683.24	690.11	697.05	704.05	711.13	718.27	725.49	732.79
7.3	740.15	747.59	755.10	762.69	770.36	778.10	785.92	793.82	801.79	809.85
7.4	817.99	826.21	834.52	842.90	851.37	859.93	868.57	877.30	886.12	895.03
7.5	904.02	913.11	922.28	931.55	940.91	950.37	959.92	969.57	979.31	989.16
7.6	999.10	1009.1	1019.3	1029.5	1039.9	1050.3	1060.9	1071.5	1082.3	1093.2
7.7	1104.2	1115.3	1126.5	1137.8	1149.2	1160.8	1172.5	1184.2	1196.1	1208.2
7.8	1220.3	1232.6	1245.0	1257.5	1270.1	1282.9	1295.8	1308.8	1321.9	1335.2
7.9	1348.6	1362.2	1375.9	1389.7	1403.7	1417.8	1432.0	1446.4	1461.0	1475.6

TABLE XV. $\cosh x$

x	0	1	2	3	4	5	6	7	8	9
3.0	10.068	10.168	10.270	10.373	10.477	10.581	10.687	10.794	10.902	11.011
3.1	11.122	11.233	11.345	11.459	11.574	11.689	11.807	11.925	12.044	12.165
3.2	12.287	12.410	12.534	12.660	12.786	12.915	13.044	13.175	13.307	13.440
3.3	13.575	13.711	13.848	13.987	14.127	14.269	14.412	14.556	14.702	14.850
3.4	14.999	15.149	15.301	15.455	15.610	15.766	15.924	16.084	16.245	16.408
3.5	16.573	16.739	16.907	17.077	17.248	17.421	17.596	17.772	17.951	18.131
3.6	18.313	18.497	18.682	18.870	19.059	19.250	19.444	19.639	19.836	20.035
3.7	20.236	20.439	20.644	20.852	21.061	21.272	21.486	21.702	21.919	22.139
3.8	22.362	22.586	22.813	23.042	23.273	23.507	23.743	23.982	24.222	24.466
3.9	24.711	24.959	25.210	25.463	25.719	25.977	26.238	26.502	26.768	27.037
4.0	27.308	27.583	27.860	28.139	28.422	28.707	28.996	29.287	29.581	29.878
4.1	30.178	30.482	30.788	31.097	31.409	31.725	32.044	32.365	32.691	33.019
4.2	33.351	33.686	34.024	34.366	34.711	35.060	35.412	35.768	36.127	36.490
4.3	36.857	37.227	37.601	37.979	38.360	38.746	39.135	39.528	39.925	40.326
4.4	40.732	41.141	41.554	41.972	42.393	42.819	43.250	43.684	44.123	44.566
4.5	45.014	45.466	45.923	46.385	46.851	47.321	47.797	48.277	48.762	49.252
4.6	49.747	50.247	50.752	51.262	51.777	52.297	52.823	53.354	53.890	54.431
4.7	54.978	55.531	56.089	56.652	57.221	57.796	58.377	58.964	59.556	60.155
4.8	60.759	61.370	61.987	62.609	63.239	63.874	64.516	65.164	65.819	66.481
4.9	67.149	67.823	68.505	69.193	69.889	70.591	71.300	72.017	72.741	73.472
5.0	74.210	74.956	75.709	76.470	77.238	78.014	78.798	79.590	80.390	81.198
5.1	82.014	82.838	83.671	84.512	85.361	86.219	87.085	87.960	88.844	89.737
5.2	90.639	91.550	92.470	93.399	94.338	95.286	96.243	97.211	98.187	99.174
5.3	100.17	101.18	102.19	103.22	104.26	105.31	106.36	107.43	108.51	109.60
5.4	110.71	111.82	112.94	114.08	115.22	116.38	117.55	118.73	119.93	121.13
5.5	122.35	123.58	124.82	126.07	127.34	128.62	129.91	131.22	132.54	133.87
5.6	135.22	136.57	137.95	139.33	140.73	142.15	143.58	145.02	146.48	147.95
5.7	149.44	150.94	152.45	153.99	155.53	157.10	158.68	160.27	161.88	163.51
5.8	165.15	166.81	168.49	170.18	171.89	173.62	175.36	177.13	178.91	180.70
5.9	182.52	184.35	186.21	188.08	189.97	191.88	193.81	195.75	197.72	199.71
6.0	201.72	203.74	205.79	207.86	209.95	212.06	214.19	216.34	218.52	220.71
6.1	222.93	225.17	227.43	229.72	232.03	234.36	236.72	239.09	241.50	243.92
6.2	246.38	248.85	251.35	253.88	256.43	259.01	261.61	264.24	266.90	269.58
6.3	272.29	275.02	277.79	280.58	283.40	286.25	289.12	292.03	294.96	297.93
6.4	300.92	303.95	307.00	310.09	313.20	316.35	319.53	322.74	325.99	329.26
6.5	332.57	335.91	339.29	342.70	346.14	349.62	353.14	356.69	360.27	363.89
6.6	367.55	371.24	374.97	378.74	382.55	386.39	390.28	394.20	398.16	402.16
6.7	406.20	410.29	414.41	418.57	422.78	427.03	431.32	435.66	440.03	444.46
6.8	448.92	453.44	457.99	462.60	467.25	471.94	476.68	481.47	486.31	491.20
6.9	496.14	501.12	506.16	511.25	516.39	521.58	526.82	532.11	537.46	542.86
7.0	548.32	553.83	559.39	565.02	570.69	576.43	582.22	588.07	593.98	599.95
7.1	605.98	612.07	618.23	624.44	630.71	637.05	643.46	649.92	656.45	663.05
7.2	669.72	676.45	683.24	690.11	697.05	704.05	711.13	718.28	725.49	732.79
7.3	740.15	747.59	755.10	762.69	770.36	778.10	785.92	793.82	801.80	809.85
7.4	817.99	826.21	834.52	842.90	851.38	859.93	868.57	877.30	886.12	895.03
7.5	904.02	913.11	922.28	931.55	940.92	950.37	959.92	969.57	979.31	989.16
7.6	999.10	1009.1	1019.3	1029.5	1039.9	1050.3	1060.9	1071.5	1082.3	1093.2
7.7	1104.2	1115.3	1126.5	1137.8	1149.2	1160.8	1172.5	1184.2	1196.1	1208.2
7.8	1220.3	1232.6	1245.0	1257.5	1270.1	1282.9	1295.8	1308.8	1321.9	1335.2
7.9	1348.6	1362.2	1375.9	1389.7	1403.7	1417.8	1432.0	1446.4	1461.0	1475.6

TABLE XVI.

$\tanh x$

x	0	1	2	3	4	5	6	7	8	9
.00	.0000	0010	0020	0030	0040	0050	0060	0070	0080	0090
.01	.0100	0110	0120	0130	0140	0150	0160	0170	0180	0190
.02	.0200	0210	0220	0230	0240	0250	0260	0270	0280	0290
.03	.0300	0310	0320	0330	0340	0350	0360	0370	0380	0390
.04	.0400	0410	0420	0430	0440	0450	0460	0470	0480	0490
.05	.0500	0510	0520	0530	0539	0549	0559	0569	0579	0589
.06	.0599	0609	0619	0629	0639	0649	0659	0669	0679	0689
.07	.0699	0709	0719	0729	0739	0749	0759	0768	0778	0788
.08	.0798	0808	0818	0828	0838	0848	0858	0868	0878	0888
.09	.0898	0907	0917	0927	0937	0947	0957	0967	0977	0987
.10	.0997	1007	1016	1026	1036	1046	1056	1066	1076	1086
.11	.1096	1105	1115	1125	1135	1145	1155	1165	1175	1184
.12	.1194	1204	1214	1224	1234	1244	1253	1263	1273	1283
.13	.1293	1303	1312	1322	1332	1342	1352	1361	1371	1381
.14	.1391	1401	1411	1420	1430	1440	1450	1460	1469	1479
.15	.1489	1499	1508	1518	1528	1538	1547	1557	1567	1577
.16	.1586	1596	1606	1616	1625	1635	1645	1655	1664	1674
.17	.1684	1694	1703	1713	1723	1732	1742	1752	1761	1771
.18	.1781	1790	1800	1810	1820	1829	1839	1849	1858	1868
.19	.1877	1887	1897	1906	1916	1926	1935	1945	1955	1964
.20	.1974	1983	1993	2003	2012	2022	2031	2041	2051	2060
.21	.2070	2079	2089	2098	2108	2117	2127	2137	2146	2156
.22	.2165	2175	2184	2194	2203	2213	2222	2232	2241	2251
.23	.2260	2270	2279	2289	2298	2308	2317	2327	2336	2346
.24	.2355	2364	2374	2383	2393	2402	2412	2421	2430	2440
.25	.2449	2459	2468	2477	2487	2496	2506	2515	2524	2534
.26	.2543	2552	2562	2571	2580	2590	2599	2608	2618	2627
.27	.2636	2646	2655	2664	2673	2683	2692	2701	2711	2720
.28	.2729	2738	2748	2757	2766	2775	2784	2794	2803	2812
.29	.2821	2831	2840	2849	2858	2867	2876	2886	2895	2904
.30	.2913	2922	2931	2941	2950	2959	2968	2977	2986	2995
.31	.3004	3013	3023	3032	3041	3050	3059	3068	3077	3086
.32	.3095	3104	3113	3122	3131	3140	3149	3158	3167	3176
.33	.3185	3194	3203	3212	3221	3230	3239	3248	3257	3266
.34	.3275	3284	3293	3302	3310	3319	3328	3337	3346	3355
.35	.3364	3373	3381	3390	3399	3408	3417	3426	3435	3443
.36	.3452	3461	3470	3479	3487	3496	3505	3514	3522	3531
.37	.3540	3549	3557	3566	3575	3584	3592	3601	3610	3618
.38	.3627	3636	3644	3653	3662	3670	3679	3688	3696	3705
.39	.3714	3722	3731	3739	3748	3757	3765	3774	3782	3791
.40	.3799	3808	3817	3825	3834	3842	3851	3859	3868	3876
.41	.3885	3893	3902	3910	3919	3927	3936	3944	3952	3961
.42	.3969	3978	3986	3995	4003	4011	4020	4028	4036	4045
.43	.4053	4062	4070	4078	4087	4095	4103	4112	4120	4128
.44	.4136	4145	4153	4161	4170	4178	4186	4194	4203	4211
.45	.4219	4227	4235	4244	4252	4260	4268	4276	4285	4293
.46	.4301	4309	4317	4325	4333	4342	4350	4358	4366	4374
.47	.4382	4390	4398	4406	4414	4422	4430	4438	4446	4454
.48	.4462	4470	4478	4486	4494	4502	4510	4518	4526	4534
.49	.4542	4550	4558	4566	4574	4582	4590	4598	4605	4613

TABLE XVI. $\tanh x$

x	0	1	2	3	4	5	6	7	8	9
.50	.4621	4629	4637	4645	4653	4660	4668	4676	4684	4692
.51	.4699	4707	4715	4723	4731	4738	4746	4754	4762	4769
.52	.4777	4785	4792	4800	4808	4815	4823	4831	4839	4846
.53	.4854	4861	4869	4877	4884	4892	4900	4907	4915	4922
.54	.4930	4937	4945	4953	4960	4968	4975	4983	4990	4998
.55	.5005	5013	5020	5028	5035	5043	5050	5057	5065	5072
.56	.5080	5087	5095	5102	5109	5117	5124	5132	5139	5146
.57	.5154	5161	5168	5176	5183	5190	5198	5205	5212	5219
.58	.5227	5234	5241	5248	5256	5263	5270	5277	5285	5292
.59	.5299	5306	5313	5320	5328	5335	5342	5349	5356	5363
.60	.5370	5378	5385	5392	5399	5406	5413	5420	5427	5434
.61	.5441	5448	5455	5462	5469	5476	5483	5490	5497	5504
.62	.5511	5518	5525	5532	5539	5546	5553	5560	5567	5574
.63	.5581	5587	5594	5601	5608	5615	5622	5629	5635	5642
.64	.5649	5656	5663	5669	5676	5683	5690	5696	5703	5710
.65	.5717	5723	5730	5737	5744	5750	5757	5764	5770	5777
.66	.5784	5790	5797	5804	5810	5817	5823	5830	5837	5843
.67	.5850	5856	5863	5869	5876	5883	5889	5896	5902	5909
.68	.5915	5922	5928	5935	5941	5948	5954	5961	5967	5973
.69	.5980	5986	5993	5999	6005	6012	6018	6025	6031	6037
.70	.6044	6050	6056	6063	6069	6075	6082	6088	6094	6100
.71	.6107	6113	6119	6126	6132	6138	6144	6150	6157	6163
.72	.6169	6175	6181	6188	6194	6200	6206	6212	6218	6225
.73	.6231	6237	6243	6249	6255	6261	6267	6273	6279	6285
.74	.6291	6297	6304	6310	6316	6322	6328	6334	6340	6346
.75	.6351	6357	6363	6369	6375	6381	6387	6393	6399	6405
.76	.6411	6417	6423	6428	6434	6440	6446	6452	6458	6463
.77	.6469	6475	6481	6487	6492	6498	6504	6510	6516	6521
.78	.6527	6533	6539	6544	6550	6556	6561	6567	6573	6578
.79	.6584	6590	6595	6601	6607	6612	6618	6624	6629	6635
.80	.6640	6646	6652	6657	6663	6668	6674	6679	6685	6690
.81	.6696	6701	6707	6712	6718	6723	6729	6734	6740	6745
.82	.6751	6756	6762	6767	6772	6778	6783	6789	6794	6799
.83	.6805	6810	6815	6821	6826	6832	6837	6842	6847	6853
.84	6858	6863	6869	6874	6879	6884	6890	6895	6900	6905
.85	.6911	6916	6921	6926	6932	6937	6942	6947	6952	6957
.86	.6963	6968	6973	6978	6983	6988	6993	6998	7004	7009
.87	.7014	7019	7024	7029	7034	7039	7044	7049	7054	7059
.88	.7064	7069	7074	7079	7084	7089	7094	7099	7104	7109
.89	.7114	7119	7124	7129	7134	7139	7143	7148	7153	7158
.90	.7163	7168	7173	7178	7182	7187	7192	7197	7202	7207
.91	.7211	7216	7221	7226	7230	7235	7240	7245	7249	7254
.92	.7259	7264	7268	7273	7278	7283	7287	7292	7297	7301
.93	.7306	7311	7315	7320	7325	7329	7334	7338	7343	7348
.94	.7352	7357	7361	7366	7371	7375	7380	7384	7389	7393
.95	.7398	7402	7407	7411	7416	7420	7425	7429	7434	7438
.96	.7443	7447	7452	7456	7461	7465	7469	7474	7478	7483
.97	.7487	7491	7496	7500	7505	7509	7513	7518	7522	7526
.98	.7531	7535	7539	7544	7548	7552	7557	7561	7565	7569
.99	.7574	7578	7582	7586	7591	7595	7599	7603	7608	7612

TABLE XVI.

$\tanh x$

x	0	1	2	3	4	5	6	7	8	9
1.00	.7616	7620	7624	7629	7633	7637	7641	7645	7649	7653
1.01	.7658	7662	7666	7670	7674	7678	7682	7686	7691	7695
1.02	.7699	7703	7707	7711	7715	7719	7723	7727	7731	7735
1.03	.7739	7743	7747	7751	7755	7759	7763	7767	7771	7775
1.04	.7779	7783	7787	7791	7795	7799	7802	7806	7810	7814
1.05	.7818	7822	7826	7830	7834	7837	7841	7845	7849	7853
1.06	.7857	7860	7864	7868	7872	7876	7879	7883	7887	7891
1.07	.7895	7898	7902	7906	7910	7913	7917	7921	7925	7928
1.08	.7932	7936	7939	7943	7947	7950	7954	7958	7961	7965
1.09	.7969	7972	7976	7980	7983	7987	7991	7994	7998	8001
1.10	.8005	8009	8012	8016	8019	8023	8026	8030	8034	8037
1.11	.8041	8044	8048	8051	8055	8058	8062	8065	8069	8072
1.12	.8076	8079	8083	8086	8090	8093	8096	8100	8103	8107
1.13	.8110	8114	8117	8120	8124	8127	8131	8134	8137	8141
1.14	.8144	8148	8151	8154	8158	8161	8164	8168	8171	8174
1.15	.8178	8181	8184	8187	8191	8194	8197	8201	8204	8207
1.16	.8210	8214	8217	8220	8223	8227	8230	8233	8236	8240
1.17	.8243	8246	8249	8252	8256	8259	8262	8265	8268	8271
1.18	.8275	8278	8281	8284	8287	8290	8293	8296	8300	8303
1.19	.8306	8309	8312	8315	8318	8321	8324	8327	8330	8333
1.20	.8337	8340	8343	8346	8349	8352	8355	8358	8361	8364
1.21	.8367	8370	8373	8376	8379	8382	8385	8388	8391	8394
1.22	.8397	8399	8402	8405	8408	8411	8414	8417	8420	8423
1.23	.8426	8429	8432	8434	8437	8440	8443	8446	8449	8452
1.24	.8455	8457	8460	8463	8466	8469	8472	8474	8477	8480
1.25	.8483	8486	8488	8491	8494	8497	8500	8502	8505	8508
1.26	.8511	8513	8516	8519	8522	8524	8527	8530	8533	8535
1.27	.8538	8541	8543	8546	8549	8551	8554	8557	8560	8562
1.28	.8565	8568	8570	8573	8575	8578	8581	8583	8586	8589
1.29	.8591	8594	8596	8599	8602	8604	8607	8609	8612	8615
1.30	.8617	8620	8622	8625	8627	8630	8633	8635	8638	8640
1.31	.8643	8645	8648	8650	8653	8655	8658	8660	8663	8665
1.32	.8668	8670	8673	8675	8678	8680	8683	8685	8688	8690
1.33	.8692	8695	8697	8700	8702	8705	8707	8709	8712	8714
1.34	.8717	8719	8722	8724	8726	8729	8731	8733	8736	8738
1.35	.8741	8743	8745	8748	8750	8752	8755	8757	8759	8762
1.36	.8764	8766	8769	8771	8773	8775	8778	8780	8782	8785
1.37	.8787	8789	8791	8794	8796	8798	8801	8803	8805	8807
1.38	.8810	8812	8814	8816	8818	8821	8823	8825	8827	8830
1.39	.8832	8834	8836	8838	8840	8843	8845	8847	8849	8851
1.40	.8854	8856	8858	8860	8862	8864	8866	8869	8871	8873
1.41	.8875	8877	8879	8881	8883	8886	8888	8890	8892	8894
1.42	.8896	8898	8900	8902	8904	8906	8908	8911	8913	8915
1.43	.8917	8919	8921	8923	8925	8927	8929	8931	8933	8935
1.44	.8937	8939	8941	8943	8945	8947	8949	8951	8953	8955
1.45	.8957	8959	8961	8963	8965	8967	8969	8971	8973	8975
1.46	.8977	8978	8980	8982	8984	8986	8988	8990	8992	8994
1.47	.8996	8998	9000	9001	9003	9005	9007	9009	9011	9013
1.48	.9015	9017	9018	9020	9022	9024	9026	9028	9030	9031
1.49	.9033	9035	9037	9039	9041	9042	9044	9046	9048	9050

TABLE XVI. $\tanh x$

x	0	1	2	3	4	5	6	7	8	9
1.50	.9051	9053	9055	9057	9059	9060	9062	9064	9066	9068
1.51	.9069	9071	9073	9075	9076	9078	9080	9082	9083	9085
1.52	.9087	9089	9090	9092	9094	9096	9097	9099	9101	9103
1.53	.9104	9106	9108	9109	9111	9113	9114	9116	9118	9120
1.54	.9121	9123	9125	9126	9128	9130	9131	9133	9135	9136
1.55	.9138	9140	9141	9143	9144	9146	9148	9149	9151	9153
1.56	.9154	9156	9157	9159	9161	9162	9164	9165	9167	9169
1.57	.9170	9172	9173	9175	9177	9178	9180	9181	9183	9184
1.58	.9186	9188	9189	9191	9192	9194	9195	9197	9198	9200
1.59	.9201	9203	9205	9206	9208	9209	9211	9212	9214	9215
1.60	.9217	9218	9220	9221	9223	9224	9226	9227	9229	9230
1.61	.9232	9233	9235	9236	9237	9239	9240	9242	9243	9245
1.62	.9246	9248	9249	9251	9252	9253	9255	9256	9258	9259
1.63	.9261	9262	9263	9265	9266	9268	9269	9271	9272	9273
1.64	.9275	9276	9278	9279	9280	9282	9283	9284	9286	9287
1.65	.9289	9290	9291	9293	9294	9295	9297	9298	9299	9301
1.66	.9302	9304	9305	9306	9308	9309	9310	9312	9313	9314
1.67	.9316	9317	9318	9319	9321	9322	9323	9325	9326	9327
1.68	.9329	9330	9331	9332	9334	9335	9336	9338	9339	9340
1.69	.9341	9343	9344	9345	9347	9348	9349	9350	9352	9353
1.70	.9354	9355	9357	9358	9359	9360	9362	9363	9364	9365
1.71	.9366	9368	9369	9370	9371	9373	9374	9375	9376	9377
1.72	.9379	9380	9381	9382	9383	9385	9386	9387	9388	9389
1.73	.9391	9392	9393	9394	9395	9396	9398	9399	9400	9401
1.74	.9402	9403	9405	9406	9407	9408	9409	9410	9411	9413
1.75	.9414	9415	9416	9417	9418	9419	9421	9422	9423	9424
1.76	.9425	9426	9427	9428	9429	9431	9432	9433	9434	9435
1.77	.9436	9437	9438	9439	9440	9442	9443	9444	9445	9446
1.78	.9447	9448	9449	9450	9451	9452	9453	9454	9455	9457
1.79	.9458	9459	9460	9461	9462	9463	9464	9465	9466	9467
1.8	.9468	9478	9488	9498	9508	9517	9527	9536	9545	9554
1.9	.9562	9571	9579	9587	9595	9603	9611	9618	9626	9633
2.0	.9640	9647	9654	9661	9667	9674	9680	9687	9693	9699
2.1	.9705	9710	9716	9721	9727	9732	9737	9743	9748	9753
2.2	.9757	9762	9767	9771	9776	9780	9785	9789	9793	9797
2.3	.9801	9805	9809	9812	9816	9820	9823	9827	9830	9833
2.4	.9837	9840	9843	9846	9849	9852	9855	9858	9861	9863
2.5	.9866	9869	9871	9874	9876	9879	9881	9884	9886	9888
2.6	.9890	9892	9895	9897	9899	9901	9903	9905	9906	9908
2.7	.9910	9912	9914	9915	9917	9919	9920	9922	9923	9925
2.8	.9926	9928	9929	9931	9932	9933	9935	9936	9937	9938
2.9	.9940	9941	9942	9943	9944	9945	9946	9947	9949	9950
3.	.9951	9959	9967	9973	9978	9982	9985	9988	9990	9992
4.	.9993	9995	9996	9996	9997	9998	9998	9998	9999	9999

TABLE XVII. $(\sinh x)/x$

x	0	1	2	3	4	5	6	7	8	9
.00	1.00000	00000	00000	00000	00000	00000	00001	00001	00001	00001
.01	1.00002	00002	00002	00003	00003	00004	00004	00005	00005	00006
.02	1.00007	00007	00008	00009	00010	00010	00011	00012	00013	00014
.03	1.00015	00016	00017	00018	00019	00020	00022	00023	00024	00025
.04	1.00027	00028	00029	00031	00032	00034	00035	00037	00038	00040
.05	1.00042	00043	00045	00047	00049	00050	00052	00054	00056	00058
.06	1.00060	00062	00064	00066	00068	00070	00073	00075	00077	00079
.07	1.00082	00084	00086	00089	00091	00094	00096	00099	00101	00104
.08	1.00107	00109	00112	00115	00118	00120	00123	00126	00129	00132
.09	1.00135	00138	00141	00144	00147	00150	00154	00157	00160	00163
.10	1.00167	00170	00173	00177	00180	00184	00187	00191	00195	00198
.11	1.00202	00205	00209	00213	00217	00221	00224	00228	00232	00236
.12	1.00240	00244	00248	00252	00256	00261	00265	00269	00273	00278
.13	1.00282	00286	00291	00295	00300	00304	00309	00313	00318	00322
.14	1.00327	00332	00336	00341	00346	00351	00356	00361	00365	00370
.15	1.00375	00380	00386	00391	00396	00401	00406	00411	00417	00422
.16	1.00427	00433	00438	00443	00449	00454	00460	00465	00471	00477
.17	1.00482	00488	00494	00500	00505	00511	00517	00523	00529	00535
.18	1.00541	00547	00553	00559	00565	00571	00578	00584	00590	00596
.19	1.00603	00609	00616	00622	00628	00635	00641	00648	00655	00661
.20	1.00668	00675	00681	00688	00695	00702	00709	00716	00723	00730
.21	1.00737	00744	00751	00758	00765	00772	00779	00787	00794	00801
.22	1.00809	00816	00823	00831	00838	00846	00853	00861	00869	00876
.23	1.00884	00892	00899	00907	00915	00923	00931	00939	00947	00955
.24	1.00963	00971	00979	00987	00995	01003	01012	01020	01028	01037
.25	1.01045	01053	01062	01070	01079	01087	01096	01104	01113	01122
.26	1.01130	01139	01148	01157	01166	01175	01183	01192	01201	01210
.27	1.01219	01228	01238	01247	01256	01265	01274	01284	01293	01302
.28	1.01312	01321	01331	01340	01350	01359	01369	01378	01388	01398
.29	1.01408	01417	01427	01437	01447	01457	01467	01477	01487	01497
.30	1.01507	01517	01527	01537	01547	01558	01568	01578	01589	01599
.31	1.01609	01620	01630	01641	01651	01662	01673	01683	01694	01705
.32	1.01715	01726	01737	01748	01759	01770	01781	01792	01803	01814
.33	1.01825	01836	01847	01858	01870	01881	01892	01904	01915	01926
.34	1.01938	01949	01961	01972	01984	01996	02007	02019	02031	02042
.35	1.02054	02066	02078	02090	02102	02114	02126	02138	02150	02162
.36	1.02174	02186	02198	02211	02223	02235	02248	02260	02272	02285
.37	1.02297	02310	02322	02335	02348	02360	02373	02386	02398	02411
.38	1.02424	02437	02450	02463	02476	02489	02502	02515	02528	02541
.39	1.02554	02568	02581	02594	02607	02621	02634	02648	02661	02675
.40	1.02688	02702	02715	02729	02743	02756	02770	02784	02798	02811
.41	1.02825	02839	02853	02867	02881	02895	02909	02923	02938	02952
.42	1.02966	02980	02995	03009	03023	03038	03052	03067	03081	03096
.43	1.03110	03125	03140	03154	03169	03184	03199	03213	03228	03243
.44	1.03258	03273	03288	03303	03318	03333	03348	03364	03379	03394
.45	1.03409	03425	03440	03455	03471	03486	03502	03517	03533	03549
.46	1.03564	03580	03596	03611	03627	03643	03659	03675	03691	03707
.47	1.03723	03739	03755	03771	03787	03803	03819	03836	03852	03868
.48	1.03884	03901	03917	03934	03950	03967	03983	04000	04017	04033
.49	1.04050	04067	04084	04100	04117	04134	04151	04168	04185	04202

TABLE XVII. $(\cosh x - 1)/x$

x	0	1	2	3	4	5	6	7	8	9
.00	.00000	00050	00100	00150	00200	00250	00300	00350	00400	00450
.01	.00500	00550	00600	00650	00700	00750	00800	00850	00900	00950
.02	.01000	01050	01100	01150	01200	01250	01300	01350	01400	01450
.03	.01500	01550	01600	01650	01700	01750	01800	01850	01900	01950
.04	.02000	02050	02100	02150	02200	02250	02300	02350	02400	02450
.05	.02501	02551	02601	02651	02701	02751	02801	02851	02901	02951
.06	.03001	03051	03101	03151	03201	03251	03301	03351	03401	03451
.07	.03501	03551	03602	03652	03702	03752	03802	03852	03902	03952
.08	.04002	04052	04102	04152	04202	04253	04303	04353	04403	04453
.09	.04503	04553	04603	04653	04703	04754	04804	04854	04904	04954
.10	.05004	05054	05104	05155	05205	05255	05305	05355	05405	05455
.11	.05506	05556	05606	05656	05706	05756	05807	05857	05907	05957
.12	.06007	06057	06108	06158	06208	06258	06308	06359	06409	06459
.13	.06509	06559	06610	06660	06710	06760	06810	06861	06911	06961
.14	.07011	07062	07112	07162	07212	07263	07313	07363	07414	07464
.15	.07514	07564	07615	07665	07715	07766	07816	07866	07916	07967
.16	.08017	08067	08118	08168	08218	08269	08319	08369	08420	08470
.17	.08520	08571	08621	08672	08722	08772	08823	08873	08924	08974
.18	.09024	09075	09125	09176	09226	09276	09327	09377	09428	09478
.19	.09529	09579	09630	09680	09730	09781	09831	09882	09932	09983
.20	.10033	10084	10134	10185	10235	10286	10336	10387	10438	10488
.21	.10539	10589	10640	10690	10741	10791	10842	10893	10943	10994
.22	.11044	11095	11146	11196	11247	11298	11348	11399	11449	11500
.23	.11551	11601	11652	11703	11753	11804	11855	11906	11956	12007
.24	.12058	12108	12159	12210	12261	12311	12362	12413	12464	12514
.25	.12565	12616	12667	12718	12768	12820	12870	12921	12972	13023
.26	.13073	13124	13175	13226	13277	13328	13379	13429	13480	13531
.27	.13582	13633	13684	13735	13786	13837	13888	13939	13990	14041
.28	.14092	14143	14194	14245	14296	14347	14398	14449	14500	14551
.29	.14602	14653	14704	14755	14806	14857	14908	14959	15011	15062
.30	.15113	15164	15215	15266	15317	15369	15420	15471	15522	15573
.31	.15625	15676	15727	15778	15829	15881	15932	15983	16034	16086
.32	.16137	16188	16240	16291	16342	16394	16445	16496	16548	16599
.33	.16650	16702	16753	16804	16856	16907	16959	17010	17062	17113
.34	.17164	17216	17267	17319	17370	17422	17473	17525	17576	17628
.35	.17679	17731	17782	17834	17886	17937	17989	18040	18092	18144
.36	.18195	18247	18299	18350	18402	18454	18505	18557	18609	18660
.37	.18712	18764	18815	18867	18919	18971	19023	19074	19126	19178
.38	.19230	19282	19333	19385	19437	19489	19541	19593	19645	19697
.39	.19748	19800	19852	19904	19956	20008	20060	20112	20164	20216
.40	.20268	20320	20372	20424	20476	20528	20580	20632	20685	20737
.41	.20789	20841	20893	20945	20997	21050	21102	21154	21206	21258
.42	.21311	21363	21415	21467	21520	21572	21624	21676	21729	21781
.43	.21833	21886	21938	21990	22043	22095	22148	22200	22252	22305
.44	.22357	22410	22462	22515	22567	22620	22672	22725	22777	22830
.45	.22882	22935	22987	23040	23093	23145	23198	23250	23303	23356
.46	.23408	23461	23514	23567	23619	23672	23725	23777	23830	23883
.47	.23936	23989	24041	24094	24147	24200	24253	24306	24359	24411
.48	.24464	24517	24570	24623	24676	24729	24782	24835	24888	24941
.49	.24994	25047	25100	25153	25206	25260	25313	25366	25419	25472

TABLE XVII. $(\sinh x)/x$

x	0	1	2	3	4	5	6	7	8	9
.50	1.04219	04236	04253	04270	04288	04305	04322	04340	04357	04374
.51	1.04392	04409	04427	04444	04462	04479	04497	04515	04532	04550
.52	1.04568	04586	04604	04622	04639	04657	04675	04694	04712	04730
.53	1.04748	04766	04784	04803	04821	04839	04857	04876	04894	04913
.54	1.04931	04950	04968	04987	05006	05024	05043	05062	05081	05100
.55	1.05118	05137	05156	05175	05194	05213	05232	05252	05271	05290
.56	1.05309	05329	05348	05367	05387	05406	05425	05445	05464	05484
.57	1.05504	05523	05543	05563	05582	05602	05622	05642	05662	05682
.58	1.05702	05722	05742	05762	05782	05802	05822	05843	05863	05883
.59	1.05903	05924	05944	05965	05985	06006	06026	06047	06068	06088
.60	1.06109	06130	06150	06171	06192	06213	06234	06255	06276	06297
.61	1.06318	06339	06360	06382	06403	06424	06445	06467	06488	06509
.62	1.06531	06552	06574	06596	06617	06639	06660	06682	06704	06726
.63	1.06748	06769	06791	06813	06835	06857	06879	06901	06923	06946
.64	1.06968	06990	07012	07035	07057	07079	07102	07124	07147	07169
.65	1.07192	07215	07237	07260	07283	07305	07328	07351	07374	07397
.66	1.07420	07443	07466	07489	07512	07535	07558	07582	07605	07628
.67	1.07651	07675	07698	07722	07745	07769	07792	07816	07839	07863
.68	1.07887	07911	07934	07958	07982	08006	08030	08054	08078	08102
.69	1.08126	08150	08174	08199	08223	08247	08271	08296	08320	08345
.70	1.08369	08394	08418	08443	08467	08492	08517	08542	08566	08591
.71	1.08616	08641	08666	08691	08716	08741	08766	08791	08816	08841
.72	1.08867	08892	08917	08943	08968	08994	09019	09045	09070	09096
.73	1.09121	09147	09173	09198	09224	09250	09276	09302	09328	09354
.74	1.09380	09406	09432	09458	09484	09511	09537	09563	09589	09616
.75	1.09642	09669	09695	09722	09748	09775	09802	09828	09855	09882
.76	1.09909	09935	09962	09989	10016	10043	10070	10097	10124	10152
.77	1.10179	10206	10233	10261	10288	10315	10343	10370	10398	10425
.78	1.10453	10481	10508	10536	10564	10592	10619	10647	10675	10703
.79	1.10731	10759	10787	10815	10843	10872	10900	10928	10957	10985
.80	1.11013	11042	11070	11099	11127	11156	11184	11213	11242	11271
.81	1.11299	11328	11357	11386	11415	11444	11473	11502	11531	11560
.82	1.11590	11619	11648	11677	11707	11736	11766	11795	11825	11854
.83	1.11884	11913	11943	11973	12003	12032	12062	12092	12122	12152
.84	1.12182	12212	12242	12272	12302	12333	12363	12393	12423	12454
.85	1.12484	12515	12545	12576	12606	12637	12668	12698	12729	12760
.86	1.12791	12821	12852	12883	12914	12945	12976	13008	13039	13070
.87	1.13101	13132	13164	13195	13226	13258	13289	13321	13352	13384
.88	1.13416	13447	13479	13511	13543	13575	13606	13638	13670	13702
.89	1.13734	13767	13799	13831	13863	13895	13928	13960	13992	14025
.90	1.14057	14090	14123	14155	14188	14220	14253	14286	14319	14352
.91	1.14385	14417	14450	14483	14517	14550	14583	14616	14649	14683
.92	1.14716	14749	14783	14816	14850	14883	14917	14950	14984	15018
.93	1.15051	15085	15119	15153	15187	15221	15255	15289	15323	15357
.94	1.15391	15425	15460	15494	15528	15563	15597	15632	15666	15701
.95	1.15735	15770	15805	15839	15874	15909	15944	15979	16014	16048
.96	1.16084	16119	16154	16189	16224	16259	16295	16330	16365	16401
.97	1.16436	16472	16507	16543	16578	16614	16650	16686	16721	16757
.98	1.16793	16829	16865	16901	16937	16973	17009	17046	17082	17118
.99	1.17154	17191	17227	17264	17300	17337	17373	17410	17447	17483

TABLE XVII. $(\cosh x - 1)/x$

x	0	1	2	3	4	5	6	7	8	9
.50	.25525	25578	25632	25685	25738	25791	25844	25898	25951	26004
.51	.26058	26111	26164	26217	26271	26324	26378	26431	26484	26538
.52	.26591	26645	26698	26752	26805	26859	26912	26966	27019	27073
.53	.27126	27180	27233	27287	27341	27394	27448	27501	27555	27609
.54	.27663	27716	27770	27824	27877	27931	27985	28039	28093	28146
.55	.28200	28254	28308	28362	28416	28470	28524	28578	28631	28685
.56	.28739	28793	28847	28901	28956	29010	29064	29118	29172	29226
.57	.29280	29334	29388	29443	29497	29551	29605	29659	29714	29768
.58	.29822	29876	29931	29985	30039	30094	30148	30202	30257	30311
.59	.30366	30420	30475	30529	30584	30638	30693	30747	30802	30856
.60	.30911	30965	31020	31075	31129	31184	31239	31293	31348	31403
.61	.31458	31512	31567	31622	31677	31731	31786	31841	31896	31951
.62	.32006	32061	32116	32171	32226	32281	32336	32391	32446	32501
.63	.32556	32611	32666	32721	32776	32831	32886	32942	32997	33052
.64	.33107	33163	33218	33273	33328	33384	33439	33494	33550	33605
.65	.33661	33716	33771	33827	33882	33938	33993	34049	34104	34160
.66	.34215	34271	34327	34382	34438	34494	34549	34605	34661	34716
.67	.34772	34828	34884	34939	34995	35051	35107	35163	35219	35275
.68	.35330	35386	35442	35498	35554	35610	35666	35722	35779	35835
.69	.35891	35947	36003	36059	36115	36171	36228	36284	36340	36396
.70	.36453	36509	36565	36622	36678	36734	36791	36847	36904	36960
.71	.37017	37073	37130	37186	37243	37299	37356	37412	37469	37526
.72	.37582	37639	37696	37752	37809	37866	37923	37980	38036	38093
.73	.38150	38207	38264	38321	38378	38435	38491	38548	38605	38662
.74	.38720	38777	38834	38891	38948	39005	39062	39119	39177	39234
.75	.39291	39348	39406	39463	39520	39578	39635	39692	39750	39807
.76	.39865	39922	39980	40037	40095	40152	40210	40267	40325	40383
.77	.40440	40498	40556	40613	40671	40729	40787	40844	40902	40960
.78	.41018	41076	41134	41192	41249	41307	41365	41423	41481	41539
.79	.41598	41656	41714	41772	41830	41888	41946	42005	42063	42121
.80	.42179	42238	42296	42354	42413	42471	42529	42588	42646	42705
.81	.42763	42822	42880	42939	42998	43056	43115	43173	43232	43291
.82	.43349	43408	43467	43526	43585	43643	43702	43761	43820	43879
.83	.43938	43997	44056	44115	44174	44233	44292	44351	44410	44469
.84	.44528	44588	44647	44706	44765	44825	44884	44943	45003	45062
.85	.45121	45181	45240	45300	45359	45419	45478	45538	45597	45657
.86	.45716	45776	45836	45895	45955	46015	46075	46134	46194	46254
.87	.46314	46374	46434	46494	46554	46614	46674	46734	46794	46854
.88	.46914	46974	47034	47094	47154	47215	47275	47335	47395	47456
.89	.47516	47576	47637	47697	47758	47818	47879	47939	48000	48060
.90	.48121	48181	48242	48303	48363	48424	48485	48545	48606	48667
.91	.48728	48789	48850	48910	48971	49032	49093	49154	49215	49276
.92	.49337	49399	49460	49521	49582	49643	49704	49766	49827	49888
.93	.49950	50011	50072	50134	50195	50257	50318	50380	50441	50503
.94	.50564	50626	50688	50749	50811	50873	50934	50996	51058	51120
.95	.51182	51243	51305	51367	51429	51491	51553	51615	51677	51739
.96	.51802	51864	51926	51988	52050	52112	52175	52237	52299	52362
.97	.52424	52487	52549	52611	52674	52736	52799	52861	52924	52987
.98	.53049	53112	53175	53237	53300	53363	53426	53489	53552	53614
.99	.53677	53740	53803	53866	53929	53992	54055	54119	54182	54245

TABLE XVII. $(\sinh x)/x$

x	0	1	2	3	4	5	6	7	8	9
1.00	1.1752	1756	1759	1763	1767	1770	1774	1778	1782	1785
1.01	1.1789	1793	1796	1800	1804	1808	1811	1815	1819	1823
1.02	1.1826	1830	1834	1838	1842	1845	1849	1853	1857	1861
1.03	1.1864	1868	1872	1876	1880	1883	1887	1891	1895	1899
1.04	1.1903	1907	1910	1914	1918	1922	1926	1930	1934	1938
1.05	1.1941	1945	1949	1953	1957	1961	1965	1969	1973	1977
1.06	1.1981	1985	1989	1993	1997	2001	2004	2008	2012	2016
1.07	1.2020	2024	2028	2032	2036	2040	2044	2048	2053	2057
1.08	1.2061	2065	2069	2073	2077	2081	2085	2089	2093	2097
1.09	1.2101	2105	2109	2113	2118	2122	2126	2130	2134	2138
1.10	1.2142	2146	2151	2155	2159	2163	2167	2171	2175	2180
1.11	1.2184	2188	2192	2196	2201	2205	2209	2213	2217	2222
1.12	1.2226	2230	2234	2238	2243	2247	2251	2255	2260	2264
1.13	1.2268	2273	2277	2281	2285	2290	2294	2298	2303	2307
1.14	1.2311	2316	2320	2324	2328	2333	2337	2342	2346	2350
1.15	1.2355	2359	2363	2368	2372	2376	2381	2385	2390	2394
1.16	1.2398	2403	2407	2412	2416	2421	2425	2429	2434	2438
1.17	1.2443	2447	2452	2456	2461	2465	2470	2474	2479	2483
1.18	1.2488	2492	2497	2501	2506	2510	2515	2519	2524	2528
1.19	1.2533	2538	2542	2547	2551	2556	2560	2565	2570	2574
1.20	1.2579	2583	2588	2593	2597	2602	2607	2611	2616	2621
1.21	1.2625	2630	2634	2639	2644	2648	2653	2658	2663	2667
1.22	1.2672	2677	2681	2686	2691	2696	2700	2705	2710	2715
1.23	1.2719	2724	2729	2734	2738	2743	2748	2753	2757	2762
1.24	1.2767	2772	2777	2781	2786	2791	2796	2801	2806	2810
1.25	1.2815	2820	2825	2830	2835	2840	2845	2849	2854	2859
1.26	1.2864	2869	2874	2879	2884	2889	2894	2899	2904	2909
1.27	1.2913	2918	2923	2928	2933	2938	2943	2948	2953	2958
1.28	1.2963	2968	2973	2978	2983	2988	2993	2999	3004	3009
1.29	1.3014	3019	3024	3029	3034	3039	3044	3049	3054	3059
1.30	1.3064	3070	3075	3080	3085	3090	3095	3100	3106	3111
1.31	1.3116	3121	3126	3131	3137	3142	3147	3152	3157	3163
1.32	1.3168	3173	3178	3183	3189	3194	3199	3204	3210	3215
1.33	1.3220	3225	3231	3236	3241	3247	3252	3257	3262	3268
1.34	1.3273	3278	3284	3289	3294	3300	3305	3311	3316	3321
1.35	1.3327	3332	3337	3343	3348	3354	3359	3364	3370	3375
1.36	1.3381	3386	3392	3397	3402	3408	3413	3419	3424	3430
1.37	1.3435	3441	3446	3452	3457	3463	3468	3474	3479	3485
1.38	1.3490	3496	3501	3507	3512	3518	3524	3529	3535	3540
1.39	1.3546	3552	3557	3563	3568	3574	3580	3585	3591	3597
1.40	1.3602	3608	3613	3619	3625	3630	3636	3642	3648	3653
1.41	1.3659	3665	3670	3676	3682	3687	3693	3699	3705	3710
1.42	1.3716	3722	3728	3734	3739	3745	3751	3757	3762	3768
1.43	1.3774	3780	3786	3792	3797	3803	3809	3815	3821	3827
1.44	1.3833	3838	3844	3850	3856	3862	3868	3874	3880	3886
1.45	1.3892	3897	3903	3909	3915	3921	3927	3933	3939	3945
1.46	1.3951	3957	3963	3969	3975	3981	3987	3993	3999	4005
1.47	1.4011	4017	4023	4029	4035	4042	4048	4054	4060	4066
1.48	1.4072	4078	4084	4090	4096	4103	4109	4115	4121	4127
1.49	1.4133	4139	4146	4152	4158	4164	4170	4177	4183	4189

TABLE XVII. $(\cosh x - 1)/x$

x	0	1	2	3	4	5	6	7	8	9
1.00	.5431	5437	5443	5450	5456	5462	5469	5475	5481	5488
1.01	.5494	5500	5507	5513	5520	5526	5532	5539	5545	5551
1.02	.5558	5564	5571	5577	5583	5590	5596	5603	5609	5615
1.03	.5622	5628	5635	5641	5647	5654	5660	5667	5673	5679
1.04	.5686	5692	5699	5705	5712	5718	5725	5731	5737	5744
1.05	.5750	5757	5763	5770	5776	5783	5789	5796	5802	5809
1.06	.5815	5822	5828	5835	5841	5848	5854	5861	5867	5874
1.07	.5880	5887	5893	5900	5906	5913	5920	5926	5933	5939
1.08	.5946	5952	5959	5965	5972	5979	5985	5992	5998	6005
1.09	.6011	6018	6025	6031	6038	6044	6051	6058	6064	6071
1.10	.6077	6084	6091	6097	6104	6111	6117	6124	6130	6137
1.11	.6144	6150	6157	6164	6170	6177	6184	6190	6197	6204
1.12	.6210	6217	6224	6230	6237	6244	6251	6257	6264	6271
1.13	.6277	6284	6291	6298	6304	6311	6318	6324	6331	6338
1.14	.6345	6351	6358	6365	6372	6378	6385	6392	6399	6406
1.15	.6412	6419	6426	6433	6439	6446	6453	6460	6467	6473
1.16	.6480	6487	6494	6501	6508	6514	6521	6528	6535	6542
1.17	.6549	6555	6562	6569	6576	6583	6590	6597	6603	6610
1.18	.6617	6624	6631	6638	6645	6652	6659	6665	6672	6679
1.19	.6686	6693	6700	6707	6714	6721	6728	6735	6742	6749
1.20	.6755	6762	6769	6776	6783	6790	6797	6804	6811	6818
1.21	.6825	6832	6839	6846	6853	6860	6867	6874	6881	6888
1.22	.6895	6902	6909	6916	6923	6930	6937	6944	6951	6958
1.23	.6966	6973	6980	6987	6994	7001	7008	7015	7022	7029
1.24	.7036	7043	7050	7058	7065	7072	7079	7086	7093	7100
1.25	.7107	7115	7122	7129	7136	7143	7150	7157	7165	7172
1.26	.7179	7186	7193	7200	7208	7215	7222	7229	7236	7244
1.27	.7251	7258	7265	7272	7280	7287	7294	7301	7308	7316
1.28	.7323	7330	7337	7345	7352	7359	7366	7374	7381	7388
1.29	.7396	7403	7410	7417	7425	7432	7439	7447	7454	7461
1.30	.7469	7476	7483	7491	7498	7505	7513	7520	7527	7535
1.31	.7542	7549	7557	7564	7571	7579	7586	7594	7601	7608
1.32	.7616	7623	7631	7638	7645	7653	7660	7668	7675	7682
1.33	.7690	7697	7705	7712	7720	7727	7735	7742	7750	7757
1.34	.7765	7772	7779	7787	7794	7802	7809	7817	7824	7832
1.35	.7839	7847	7855	7862	7870	7877	7885	7892	7900	7907
1.36	.7915	7922	7930	7938	7945	7953	7960	7968	7976	7983
1.37	.7991	7998	8006	8014	8021	8029	8036	8044	8052	8059
1.38	.8067	8075	8082	8090	8098	8105	8113	8121	8128	8136
1.39	.8144	8151	8159	8167	8174	8182	8190	8198	8205	8213
1.40	.8221	8228	8236	8244	8252	8259	8267	8275	8283	8290
1.41	.8298	8306	8314	8322	8329	8337	8345	8353	8361	8368
1.42	.8376	8384	8392	8400	8407	8415	8423	8431	8439	8447
1.43	.8455	8462	8470	8478	8486	8494	8502	8510	8518	8526
1.44	.8533	8541	8549	8557	8565	8573	8581	8589	8597	8605
1.45	.8613	8621	8629	8637	8645	8653	8660	8669	8676	8684
1.46	.8692	8700	8708	8716	8724	8732	8740	8749	8757	8765
1.47	.8773	8781	8789	8797	8805	8813	8821	8829	8837	8845
1.48	.8853	8861	8870	8878	8886	8894	8902	8910	8918	8926
1.49	.8934	8943	8951	8959	8967	8975	8983	8992	9000	9008

TABLE XVII. $(\sinh x)/x$

x	0	1	2	3	4	5	6	7	8	9
1.50	1.4195	4201	4208	4214	4220	4226	4233	4239	4245	4251
1.51	1.4258	4264	4270	4277	4283	4289	4295	4302	4308	4314
1.52	1.4321	4327	4333	4340	4346	4353	4359	4365	4372	4378
1.53	1.4384	4391	4397	4404	4410	4417	4423	4429	4436	4442
1.54	1.4449	4455	4462	4468	4475	4481	4488	4494	4501	4507
1.55	1.4514	4520	4527	4533	4540	4546	4553	4559	4566	4573
1.56	1.4579	4586	4592	4599	4605	4612	4619	4625	4632	4639
1.57	1.4645	4652	4659	4665	4672	4679	4685	4692	4699	4705
1.58	1.4712	4719	4725	4732	4739	4746	4752	4759	4766	4773
1.59	1.4779	4786	4793	4800	4806	4813	4820	4827	4834	4840
1.60	1.4847	4854	4861	4868	4875	4882	4888	4895	4902	4909
1.61	1.4916	4923	4930	4937	4944	4950	4957	4964	4971	4978
1.62	1.4985	4992	4999	5006	5013	5020	5027	5034	5041	5048
1.63	1.5055	5062	5069	5076	5083	5090	5097	5104	5111	5118
1.64	1.5126	5133	5140	5147	5154	5161	5168	5175	5182	5190
1.65	1.5197	5204	5211	5218	5225	5233	5240	5247	5254	5261
1.66	1.5269	5276	5283	5290	5298	5305	5312	5319	5327	5334
1.67	1.5341	5348	5356	5363	5370	5378	5385	5392	5400	5407
1.68	1.5414	5422	5429	5436	5444	5451	5458	5466	5473	5481
1.69	1.5488	5495	5503	5510	5518	5525	5533	5540	5548	5555
1.70	1.5563	5570	5578	5585	5593	5600	5608	5615	5623	5630
1.71	1.5638	5645	5653	5660	5668	5676	5683	5691	5698	5706
1.72	1.5714	5721	5729	5736	5744	5752	5759	5767	5775	5782
1.73	1.5790	5798	5805	5813	5821	5829	5836	5844	5852	5860
1.74	1.5867	5875	5883	5891	5898	5906	5914	5922	5930	5937
1.75	1.5945	5953	5961	5969	5977	5984	5992	6000	6008	6016
1.76	1.6024	6032	6040	6048	6055	6063	6071	6079	6087	6095
1.77	1.6103	6111	6119	6127	6135	6143	6151	6159	6167	6175
1.78	1.6183	6191	6199	6207	6215	6223	6232	6240	6248	6256
1.79	1.6264	6272	6280	6288	6296	6305	6313	6321	6329	6337
1.80	1.6345	6354	6362	6370	6378	6386	6395	6403	6411	6419
1.81	1.6428	6436	6444	6452	6461	6469	6477	6486	6494	6502
1.82	1.6511	6519	6527	6536	6544	6552	6561	6569	6577	6586
1.83	1.6594	6603	6611	6619	6628	6636	6645	6653	6662	6670
1.84	1.6679	6687	6696	6704	6713	6721	6730	6738	6747	6755
1.85	1.6764	6772	6781	6789	6798	6807	6815	6824	6832	6841
1.86	1.6850	6858	6867	6876	6884	6893	6902	6910	6919	6928
1.87	1.6936	6945	6954	6962	6971	6980	6989	6997	7006	7015
1.88	1.7024	7032	7041	7050	7059	7068	7077	7085	7094	7103
1.89	1.7112	7121	7130	7139	7147	7156	7165	7174	7183	7192
1.90	1.7201	7210	7219	7228	7237	7246	7255	7264	7273	7282
1.91	1.7291	7300	7309	7318	7327	7336	7345	7354	7363	7372
1.92	1.7381	7390	7399	7408	7418	7427	7436	7445	7454	7463
1.93	1.7472	7482	7491	7500	7509	7518	7528	7537	7546	7555
1.94	1.7565	7574	7583	7592	7602	7611	7620	7630	7639	7648
1.95	1.7657	7667	7676	7686	7695	7704	7714	7723	7732	7742
1.96	1.7751	7761	7770	7779	7789	7798	7808	7817	7827	7836
1.97	1.7846	7855	7865	7874	7884	7893	7903	7912	7922	7932
1.98	1.7941	7951	7960	7970	7979	7989	7999	8008	8018	8028
1.99	1.8037	8047	8057	8066	8076	8086	8095	8105	8115	8125

TABLE XVII. $(\cosh x - 1)/x$

x	0	1	2	3	4	5	6	7	8	9
1.50	.9016	9024	9032	9041	9049	9057	9065	9073	9082	9090
1.51	.9098	9106	9115	9123	9131	9139	9148	9156	9164	9172
1.52	.9181	9189	9197	9206	9214	9222	9230	9239	9247	9255
1.53	.9264	9272	9280	9289	9297	9305	9314	9322	9331	9339
1.54	.9347	9356	9364	9372	9381	9389	9398	9406	9414	9423
1.55	.9431	9440	9448	9457	9465	9474	9482	9490	9499	9507
1.56	.9516	9524	9533	9541	9550	9558	9567	9575	9584	9592
1.57	.9601	9609	9618	9627	9635	9644	9652	9661	9669	9678
1.58	.9687	9695	9704	9712	9721	9729	9738	9747	9755	9764
1.59	.9773	9781	9790	9798	9807	9816	9824	9833	9842	9850
1.60	.9859	9868	9877	9885	9894	9903	9911	9920	9929	9938
1.61	.9946	9955	9964	9972	9981	9990	9999	*0008	*0016	*0025
1.62	1.0034	0043	0052	0060	0069	0078	0087	0096	0104	0113
1.63	1.0122	0131	0140	0149	0158	0166	0175	0184	0193	0202
1.64	1.0211	0220	0229	0238	0246	0255	0264	0273	0282	0291
1.65	1.0300	0309	0318	0327	0336	0345	0354	0363	0372	0381
1.66	1.0390	0399	0408	0417	0426	0435	0444	0453	0462	0471
1.67	1.0480	0489	0498	0508	0517	0526	0535	0544	0553	0562
1.68	1.0571	0580	0589	0599	0608	0617	0626	0635	0644	0654
1.69	1.0663	0672	0681	0690	0700	0709	0718	0727	0736	0746
1.70	1.0755	0764	0773	0783	0792	0801	0810	0820	0829	0838
1.71	1.0847	0857	0866	0875	0885	0894	0903	0913	0922	0931
1.72	1.0941	0950	0959	0969	0978	0988	0997	1006	1016	1025
1.73	1.1035	1044	1053	1063	1072	1082	1091	1101	1110	1119
1.74	1.1129	1138	1148	1157	1167	1176	1186	1195	1205	1214
1.75	1.1224	1233	1243	1253	1262	1272	1281	1291	1300	1310
1.76	1.1320	1329	1339	1348	1358	1368	1377	1387	1396	1406
1.77	1.1416	1425	1435	1445	1454	1464	1474	1483	1493	1503
1.78	1.1513	1522	1532	1542	1552	1561	1571	1581	1591	1600
1.79	1.1610	1620	1630	1639	1649	1659	1669	1679	1689	1698
1.80	1.1708	1718	1728	1738	1748	1757	1767	1777	1787	1797
1.81	1.1807	1817	1827	1837	1847	1857	1866	1876	1886	1896
1.82	1.1906	1916	1926	1936	1946	1956	1966	1976	1986	1996
1.83	1.2006	2016	2026	2036	2046	2057	2067	2077	2087	2097
1.84	1.2107	2117	2127	2137	2147	2158	2168	2178	2188	2198
1.85	1.2208	2218	2229	2239	2249	2259	2269	2280	2290	2300
1.86	1.2310	2320	2331	2341	2351	2362	2372	2382	2392	2403
1.87	1.2413	2423	2433	2444	2454	2464	2475	2485	2496	2506
1.88	1.2516	2527	2537	2547	2558	2568	2579	2589	2599	2610
1.89	1.2620	2631	2641	2652	2662	2672	2683	2693	2704	2714
1.90	1.2725	2735	2746	2756	2767	2777	2788	2799	2809	2820
1.91	1.2830	2841	2851	2862	2873	2883	2894	2904	2915	2926
1.92	1.2936	2947	2958	2968	2979	2990	3000	3011	3022	3032
1.93	1.3043	3054	3065	3075	3086	3097	3108	3118	3129	3140
1.94	1.3151	3161	3172	3183	3194	3205	3216	3226	3237	3248
1.95	1.3259	3270	3281	3291	3302	3313	3324	3335	3346	3357
1.96	1.3368	3379	3390	3401	3412	3423	3434	3445	3456	3466
1.97	1.3477	3488	3500	3511	3522	3533	3544	3555	3566	3577
1.98	1.3588	3599	3610	3621	3632	3643	3655	3666	3677	3688
1.99	1.3699	3710	3721	3733	3744	3755	3766	3777	3789	3800

TABLE XVII. $(\sinh x)/x$

x	0	1	2	3	4	5	6	7	8	9
2.00	1.8134	8144	8154	8164	8173	8183	8193	8203	8213	8222
2.01	1.8232	8242	8252	8262	8272	8281	8291	8301	8311	8321
2.02	1.8331	8341	8351	8361	8371	8381	8390	8400	8410	8420
2.03	1.8430	8440	8450	8460	8470	8481	8491	8501	8511	8521
2.04	1.8531	8541	8551	8561	8571	8581	8591	8602	8612	8622
2.05	1.8632	8642	8652	8663	8673	8683	8693	8704	8714	8724
2.06	1.8734	8745	8755	8765	8775	8786	8796	8806	8817	8827
2.07	1.8837	8848	8858	8868	8879	8889	8900	8910	8920	8931
2.08	1.8941	8952	8962	8973	8983	8993	9004	9014	9025	9035
2.09	1.9046	9057	9067	9078	9088	9099	9109	9120	9130	9141
2.10	1.9152	9162	9173	9184	9194	9205	9216	9226	9237	9248
2.11	1.9258	9269	9280	9290	9301	9312	9323	9333	9344	9355
2.12	1.9366	9377	9387	9398	9409	9420	9431	9442	9452	9463
2.13	1.9474	9485	9496	9507	9518	9529	9540	9551	9562	9573
2.14	1.9584	9595	9606	9617	9628	9639	9650	9661	9672	9683
2.15	1.9694	9705	9716	9727	9738	9749	9761	9772	9783	9794
2.16	1.9805	9816	9827	9839	9850	9861	9872	9884	9895	9906
2.17	1.9917	9929	9940	9951	9962	9974	9985	9996	*0008	*0019
2.18	2.0030	0042	0053	0065	0076	0087	0099	0110	0122	0133
2.19	2.0145	0156	0167	0179	0190	0202	0213	0225	0236	0248
2.20	2.0260	0271	0283	0294	0306	0317	0329	0341	0352	0364
2.21	2.0376	0387	0399	0411	0422	0434	0446	0457	0469	0481
2.22	2.0493	0504	0516	0528	0540	0551	0563	0575	0587	0599
2.23	2.0611	0622	0634	0646	0658	0670	0682	0694	0706	0718
2.24	2.0730	0742	0754	0766	0778	0790	0802	0814	0826	0838
2.25	2.0850	0862	0874	0886	0898	0910	0922	0934	0946	0959
2.26	2.0971	0983	0995	1007	1019	1032	1044	1056	1068	1080
2.27	2.1093	1105	1117	1130	1142	1154	1166	1179	1191	1203
2.28	2.1216	1228	1241	1253	1265	1278	1290	1303	1315	1327
2.29	2.1340	1352	1365	1377	1390	1402	1415	1427	1440	1452
2.30	2.1465	1478	1490	1503	1515	1528	1541	1553	1566	1579
2.31	2.1591	1604	1617	1629	1642	1655	1668	1680	1693	1706
2.32	2.1719	1731	1744	1757	1770	1783	1795	1808	1821	1834
2.33	2.1847	1860	1873	1886	1899	1911	1924	1937	1950	1963
2.34	2.1976	1989	2002	2015	2028	2041	2054	2068	2081	2094
2.35	2.2107	2120	2133	2146	2159	2172	2186	2199	2212	2225
2.36	2.2238	2252	2265	2278	2291	2305	2318	2331	2344	2358
2.37	2.2371	2384	2398	2411	2425	2438	2451	2465	2478	2492
2.38	2.2505	2518	2532	2545	2559	2572	2586	2599	2613	2626
2.39	2.2640	2653	2667	2681	2694	2708	2721	2735	2749	2762
2.40	2.2776	2790	2803	2817	2831	2844	2858	2872	2886	2899
2.41	2.2913	2927	2941	2955	2968	2982	2996	3010	3024	3038
2.42	2.3052	3065	3079	3093	3107	3121	3135	3149	3163	3177
2.43	2.3191	3205	3219	3233	3247	3261	3275	3289	3303	3318
2.44	2.3332	3346	3360	3374	3388	3403	3417	3431	3445	3459
2.45	2.3474	3488	3502	3516	3531	3545	3559	3574	3588	3602
2.46	2.3617	3631	3645	3660	3674	3689	3703	3717	3732	3746
2.47	2.3761	3775	3790	3804	3819	3833	3848	3863	3877	3892
2.48	2.3906	3921	3936	3950	3965	3979	3994	4009	4024	4038
2.49	2.4053	4068	4082	4097	4112	4127	4142	4156	4171	4186

TABLE XVII. $(\cosh x - 1)/x$

x	0	1	2	3	4	5	6	7	8	9
2.00	1.3811	3822	3833	3845	3856	3867	3878	3890	3901	3912
2.01	1.3924	3935	3946	3958	3969	3980	3992	4003	4014	4026
2.02	1.4037	4048	4060	4071	4083	4094	4106	4117	4128	4140
2.03	1.4151	4163	4174	4186	4197	4209	4220	4232	4243	4255
2.04	1.4266	4278	4289	4301	4312	4324	4336	4347	4359	4370
2.05	1.4382	4394	4405	4417	4429	4440	4452	4464	4475	4487
2.06	1.4499	4510	4522	4534	4545	4557	4569	4581	4592	4604
2.07	1.4616	4628	4640	4651	4663	4675	4687	4699	4710	4722
2.08	1.4734	4746	4758	4770	4782	4794	4805	4817	4829	4841
2.09	1.4853	4865	4877	4889	4901	4913	4925	4937	4949	4961
2.10	1.4973	4985	4997	5009	5021	5033	5045	5057	5069	5081
2.11	1.5094	5106	5118	5130	5142	5154	5166	5179	5191	5203
2.12	1.5215	5227	5239	5252	5264	5276	5288	5301	5313	5325
2.13	1.5337	5350	5362	5374	5387	5399	5411	5423	5436	5448
2.14	1.5460	5473	5485	5498	5510	5522	5535	5547	5560	5572
2.15	1.5585	5597	5609	5622	5634	5647	5659	5672	5684	5697
2.16	1.5709	5722	5735	5747	5760	5772	5785	5797	5810	5823
2.17	1.5835	5848	5860	5873	5886	5898	5911	5924	5936	5949
2.18	1.5962	5975	5987	6000	6013	6025	6038	6051	6064	6077
2.19	1.6089	6102	6115	6128	6141	6153	6166	6179	6192	6205
2.20	1.6218	6231	6244	6256	6269	6282	6295	6308	6321	6334
2.21	1.6347	6360	6373	6386	6399	6412	6425	6438	6451	6464
2.22	1.6477	6490	6503	6517	6530	6543	6556	6569	6582	6595
2.23	1.6609	6622	6635	6648	6661	6674	6688	6701	6714	6727
2.24	1.6741	6754	6767	6780	6794	6807	6820	6834	6847	6860
2.25	1.6874	6887	6900	6914	6927	6940	6954	6967	6981	6994
2.26	1.7008	7021	7035	7048	7062	7075	7088	7102	7115	7129
2.27	1.7143	7156	7170	7183	7197	7210	7224	7238	7251	7265
2.28	1.7278	7292	7306	7319	7333	7347	7360	7374	7388	7402
2.29	1.7415	7429	7443	7457	7470	7484	7498	7512	7525	7539
2.30	1.7553	7567	7581	7595	7609	7622	7636	7650	7664	7678
2.31	1.7692	7706	7720	7734	7748	7762	7776	7790	7804	7818
2.32	1.7832	7846	7860	7874	7888	7902	7916	7930	7944	7958
2.33	1.7973	7987	8001	8015	8029	8043	8058	8072	8086	8100
2.34	1.8114	8129	8143	8157	8171	8186	8200	8214	8229	8243
2.35	1.8257	8272	8286	8300	8315	8329	8344	8358	8372	8387
2.36	1.8401	8416	8430	8445	8459	8474	8488	8503	8517	8532
2.37	1.8546	8561	8575	8590	8604	8619	8634	8648	8663	8677
2.38	1.8692	8707	8721	8736	8751	8766	8780	8795	8810	8824
2.39	1.8839	8854	8869	8883	8898	8913	8928	8943	8958	8972
2.40	1.8987	9002	9017	9032	9047	9062	9077	9092	9107	9122
2.41	1.9136	9151	9166	9181	9196	9211	9226	9242	9257	9272
2.42	1.9287	9302	9317	9332	9347	9362	9377	9393	9408	9423
2.43	1.9438	9453	9469	9484	9499	9514	9529	9545	9560	9575
2.44	1.9591	9606	9621	9637	9652	9667	9683	9698	9713	9729
2.45	1.9744	9760	9775	9790	9806	9821	9837	9852	9868	9883
2.46	1.9899	9914	9930	9946	9961	9977	9992	*0008	*0023	*0039
2.47	2.0055	0070	0086	0102	0117	0133	0149	0164	0180	0196
2.48	2.0212	0227	0243	0259	0275	0291	0306	0322	0338	0354
2.49	2.0370	0386	0402	0418	0433	0449	0465	0481	0497	0513

TABLE XVII. $(\sinh x)/x$

x	0	1	2	3	4	5	6	7	8	9
2.50	2.4201	4216	4231	4245	4260	4275	4290	4305	4320	4335
2.51	2.4350	4365	4380	4395	4410	4425	4440	4455	4470	4485
2.52	2.4500	4515	4530	4546	4561	4576	4591	4606	4621	4637
2.53	2.4652	4667	4682	4698	4713	4728	4743	4759	4774	4789
2.54	2.4805	4820	4835	4851	4866	4882	4897	4912	4928	4943
2.55	2.4959	4974	4990	5005	5021	5036	5052	5068	5083	5099
2.56	2.5114	5130	5146	5161	5177	5192	5208	5224	5240	5255
2.57	2.5271	5287	5302	5318	5334	5350	5366	5381	5397	5413
2.58	2.5429	5445	5461	5477	5493	5508	5524	5540	5556	5572
2.59	2.5588	5604	5620	5636	5652	5668	5685	5701	5717	5733
2.60	2.5749	5765	5781	5797	5814	5830	5846	5862	5878	5395
2.61	2.5911	5927	5944	5960	5976	5992	6009	6025	6042	6058
2.62	2.6074	6091	6107	6124	6140	6156	6173	6189	6206	6222
2.63	2.6239	6255	6272	6289	6305	6322	6338	6355	6372	6388
2.64	2.6405	6422	6438	6455	6472	6489	6505	6522	6539	6556
2.65	2.6572	6589	6606	6623	6640	6657	6674	6690	6707	6724
2.66	2.6741	6758	6775	6792	6809	6826	6843	6860	6877	6894
2.67	2.6911	6929	6946	6963	6980	6997	7014	7031	7049	7066
2.68	2.7083	7100	7118	7135	7152	7169	7187	7204	7221	7239
2.69	2.7256	7274	7291	7308	7326	7343	7361	7378	7396	7413
2.70	2.7431	7448	7466	7483	7501	7518	7536	7554	7571	7589
2.71	2.7607	7624	7642	7660	7677	7695	7713	7731	7748	7766
2.72	2.7784	7802	7820	7837	7855	7873	7891	7909	7927	7945
2.73	2.7963	7981	7999	8017	8035	8053	8071	8089	8107	8125
2.74	2.8143	8161	8179	8197	8216	8234	8252	8270	8288	8307
2.75	2.8325	8343	8361	8380	8398	8416	8435	8453	8471	8490
2.76	2.8508	8527	8545	8564	8582	8600	8619	8637	8656	8675
2.77	2.8693	8712	8730	8749	8767	8786	8805	8823	8842	8861
2.78	2.8879	8898	8917	8936	8954	8973	8992	9011	9030	9049
2.79	2.9067	9086	9105	9124	9143	9162	9181	9200	9219	9238
2.80	2.9257	9276	9295	9314	9333	9352	9371	9390	9410	9429
2.81	2.9448	9467	9486	9506	9525	9544	9563	9583	9602	9621
2.82	2.9641	9660	9679	9699	9718	9737	9757	9776	9796	9815
2.83	2.9835	9854	9874	9893	9913	9932	9952	9972	9991	*0011
2.84	3.0031	0050	0070	0090	0109	0129	0149	0169	0188	0208
2.85	3.0228	0248	0268	0288	0307	0327	0347	0367	0387	0407
2.86	3.0427	0447	0467	0487	0507	0527	0547	0567	0587	0608
2.87	3.0628	0648	0668	0688	0708	0729	0749	0769	0789	0810
2.88	3.0830	0850	0871	0891	0912	0932	0952	0973	0993	1014
2.89	3.1034	1055	1075	1096	1116	1137	1157	1178	1199	1219
2.90	3.1240	1261	1281	1302	1323	1343	1364	1385	1406	1426
2.91	3.1447	1468	1489	1510	1531	1552	1573	1594	1614	1635
2.92	3.1656	1677	1698	1720	1741	1762	1783	1804	1825	1846
2.93	3.1867	1888	1910	1931	1952	1973	1995	2016	2037	2059
2.94	3.2080	2101	2123	2144	2165	2187	2208	2230	2251	2273
2.95	3.2294	2316	2337	2359	2381	2402	2424	2445	2467	2489
2.96	3.2510	2532	2554	2576	2597	2619	2641	2663	2685	2706
2.97	3.2728	2750	2772	2794	2816	2838	2860	2882	2904	2926
2.98	3.2948	2970	2992	3014	3036	3059	3081	3103	3125	3147
2.99	3.3170	3192	3214	3236	3259	3281	3303	3326	3348	3370

TABLE XVII. $(\cosh x - 1)/x$

x	0	1	2	3	4	5	6	7	8	9
2.50	2.0529	0545	0561	0577	0593	0609	0625	0641	0657	0674
2.51	2.0690	0706	0722	0738	0754	0770	0787	0803	0819	0835
2.52	2.0851	0868	0884	0900	0916	0933	0949	0965	0982	0998
2.53	2.1014	1031	1047	1063	1080	1096	1112	1129	1145	1162
2.54	2.1178	1195	1211	1228	1244	1261	1277	1294	1310	1327
2.55	2.1344	1360	1377	1393	1410	1427	1443	1460	1477	1493
2.56	2.1510	1527	1543	1560	1577	1594	1611	1627	1644	1661
2.57	2.1678	1695	1711	1728	1745	1762	1779	1796	1813	1830
2.58	2.1847	1864	1881	1898	1915	1932	1949	1966	1983	2000
2.59	2.2017	2034	2051	2068	2085	2103	2120	2137	2154	2171
2.60	2.2189	2206	2223	2240	2257	2275	2292	2309	2327	2344
2.61	2.2361	2379	2396	2413	2431	2448	2466	2483	2500	2518
2.62	2.2535	2553	2570	2588	2605	2623	2640	2658	2676	2693
2.63	2.2711	2728	2746	2764	2781	2799	2817	2834	2852	2870
2.64	2.2887	2905	2923	2941	2958	2976	2994	3012	3030	3048
2.65	2.3065	3083	3101	3119	3137	3155	3173	3191	3209	3227
2.66	2.3245	3263	3281	3299	3317	3335	3353	3371	3389	3407
2.67	2.3426	3444	3462	3480	3498	3516	3535	3553	3571	3589
2.68	2.3608	3626	3644	3662	3681	3699	3717	3736	3754	3773
2.69	2.3791	3809	3828	3846	3865	3883	3902	3920	3939	3957
2.70	2.3976	3994	4013	4032	4050	4069	4087	4106	4125	4143
2.71	2.4162	4181	4199	4218	4237	4256	4274	4293	4312	4331
2.72	2.4350	4368	4387	4406	4425	4444	4463	4482	4501	4520
2.73	2.4539	4558	4577	4596	4615	4634	4653	4672	4691	4710
2.74	2.4729	4748	4767	4787	4806	4825	4844	4863	4883	4902
2.75	2.4921	4940	4960	4979	4998	5018	5037	5056	5076	5095
2.76	2.5114	5134	5153	5173	5192	5212	5231	5251	5270	5290
2.77	2.5309	5329	5348	5368	5388	5407	5427	5446	5466	5486
2.78	2.5506	5525	5545	5565	5584	5604	5624	5644	5664	5683
2.79	2.5703	5723	5743	5763	5783	5803	5823	5843	5863	5883
2.80	2.5903	5923	5943	5963	5983	6003	6023	6043	6063	6083
2.81	2.6103	6124	6144	6164	6184	6204	6225	6245	6265	6285
2.82	2.6306	6326	6346	6367	6387	6408	6428	6448	6469	6489
2.83	2.6510	6530	6551	6571	6592	6612	6633	6653	6674	6695
2.84	2.6715	6736	6756	6777	6798	6818	6839	6860	6881	6901
2.85	2.6922	6943	6964	6985	7005	7026	7047	7068	7089	7110
2.86	2.7131	7152	7173	7194	7215	7236	7257	7278	7299	7320
2.87	2.7341	7362	7383	7404	7426	7447	7468	7489	7510	7532
2.88	2.7553	7574	7595	7617	7638	7659	7681	7702	7723	7745
2.89	2.7766	7788	7809	7831	7852	7874	7895	7917	7938	7960
2.90	2.7981	8003	8025	8046	8068	8090	8111	8133	8155	8176
2.91	2.8198	8220	8242	8263	8285	8307	8329	8351	8373	8395
2.92	2.8416	8438	8460	8482	8504	8526	8548	8570	8592	8614
2.93	2.8637	8659	8681	8703	8725	8747	8769	8792	8814	8836
2.94	2.8858	8881	8903	8925	8948	8970	8992	9015	9037	9059
2.95	2.9082	9104	9127	9149	9172	9194	9217	9239	9262	9284
2.96	2.9307	9330	9352	9375	9398	9420	9443	9466	9489	9511
2.97	2.9534	9557	9580	9602	9625	9648	9671	9694	9717	9740
2.98	2.9763	9786	9809	9832	9855	9878	9901	9924	9947	9970
2.99	2.9993	*0016	*0040	*0063	*0086	*0109	*0132	*0156	*0179	*0202

TABLE XVIII. $(\cosh x)/x$

x	0	1	2	3	4	5	6	7	8	9
.00	∞	1000.0	500.0	333.3	250.0	200.0	166.7	142.9	125.0	111.1
.01	100.0	90.92	83.34	76.93	71.44	66.67	62.51	58.83	55.56	52.64
.02	50.01	47.63	45.47	43.49	41.68	40.01	38.47	37.05	35.73	34.50
.03	33.35	32.27	31.27	30.32	29.43	28.59	27.80	27.05	26.33	25.66
.04	25.02	24.41	23.83	23.28	22.75	22.24	21.76	21.30	20.86	20.43
.05	20.03	19.63	19.26	18.89	18.55	18.21	17.89	17.57	17.27	16.98
.06	16.70	16.42	16.16	15.90	15.66	15.42	15.18	14.96	14.74	14.53
.07	14.32	14.12	13.92	13.74	13.55	13.37	13.20	13.03	12.86	12.70
.08	12.54	12.39	12.24	12.09	11.95	11.81	11.67	11.54	11.41	11.28
.09	11.16	11.03	10.92	10.80	10.69	10.57	10.46	10.36	10.25	10.15
.10	10.05	9.952	9.855	9.760	9.667	9.576	9.487	9.400	9.313	9.229
.11	9.146	9.065	8.985	8.906	8.829	8.753	8.679	8.606	8.534	8.463
.12	8.393	8.325	8.258	8.192	8.127	8.063	8.000	7.938	7.877	7.817
.13	7.757	7.699	7.642	7.585	7.530	7.475	7.421	7.368	7.315	7.264
.14	7.213	7.163	7.113	7.065	7.017	6.969	6.922	6.876	6.831	6.786
.15	6.742	6.698	6.655	6.613	6.571	6.529	6.488	6.448	6.408	6.369
.16	6.330	6.292	6.254	6.217	6.180	6.143	6.107	6.072	6.037	6.002
.17	5.968	5.934	5.900	5.867	5.834	5.802	5.770	5.738	5.707	5.676
.18	5.646	5.616	5.586	5.556	5.526	5.498	5.470	5.441	5.413	5.386
.19	5.358	5.331	5.305	5.278	5.251	5.226	5.200	5.175	5.150	5.125
.20	5.100	5.076	5.052	5.028	5.004	4.981	4.958	4.935	4.912	4.890
.21	4.867	4.845	4.823	4.802	4.780	4.759	4.738	4.717	4.697	4.676
.22	4.656	4.636	4.616	4.596	4.577	4.557	4.538	4.519	4.500	4.482
.23	4.463	4.445	4.427	4.409	4.391	4.373	4.356	4.338	4.321	4.304
.24	4.287	4.270	4.254	4.237	4.221	4.205	4.189	4.173	4.157	4.141
.25	4.126	4.110	4.095	4.080	4.065	4.050	4.035	4.020	4.006	3.991
.26	3.977	3.961	3.949	3.935	3.921	3.907	3.893	3.880	3.866	3.853
.27	3.840	3.826	3.813	3.800	3.787	3.775	3.762	3.749	3.737	3.725
.28	3.712	3.700	3.688	3.676	3.664	3.652	3.640	3.629	3.617	3.606
.29	3.594	3.583	3.572	3.561	3.549	3.538	3.527	3.517	3.506	3.495
.30	3.484	3.474	3.463	3.453	3.443	3.432	3.422	3.412	3.402	3.392
.31	3.382	3.372	3.362	3.353	3.343	3.333	3.324	3.314	3.305	3.296
.32	3.286	3.277	3.268	3.259	3.251	3.241	3.232	3.223	3.214	3.205
.33	3.197	3.188	3.180	3.171	3.163	3.154	3.146	3.137	3.129	3.121
.34	3.113	3.105	3.097	3.089	3.081	3.073	3.065	3.057	3.049	3.042
.35	3.034	3.026	3.019	3.011	3.004	2.996	2.989	2.982	2.974	2.967
.36	2.960	2.953	2.945	2.938	2.931	2.924	2.917	2.910	2.903	2.897
.37	2.890	2.883	2.876	2.870	2.863	2.856	2.850	2.843	2.837	2.830
.38	2.824	2.817	2.811	2.805	2.799	2.792	2.786	2.780	2.774	2.768
.39	2.762	2.756	2.750	2.744	2.738	2.732	2.726	2.720	2.714	2.708
.40	2.703	2.697	2.691	2.686	2.680	2.674	2.669	2.663	2.658	2.652
.41	2.647	2.641	2.636	2.631	2.625	2.620	2.615	2.610	2.604	2.599
.42	2.594	2.589	2.584	2.579	2.574	2.569	2.564	2.559	2.554	2.549
.43	2.544	2.539	2.534	2.529	2.525	2.520	2.515	2.510	2.506	2.501
.44	2.496	2.492	2.487	2.482	2.478	2.473	2.469	2.464	2.460	2.455
.45	2.451	2.447	2.442	2.438	2.434	2.429	2.425	2.421	2.416	2.412
.46	2.408	2.404	2.400	2.395	2.391	2.387	2.383	2.379	2.375	2.371
.47	2.367	2.363	2.359	2.355	2.351	2.347	2.343	2.339	2.336	2.332
.48	2.328	2.324	2.320	2.317	2.313	2.309	2.305	2.302	2.298	2.294
.49	2.291	2.287	2.284	2.280	2.276	2.273	2.269	2.266	2.262	2.259

TABLE XVIII. $(\cosh x)/x$

x	0	1	2	3	4	5	6	7	8	9
.50	2.2553	2518	2483	2449	2415	2381	2347	2314	2280	2247
.51	2.2214	2181	2148	2115	2082	2050	2017	1985	1953	1922
.52	2.1890	1858	1827	1796	1764	1733	1703	1672	1641	1611
.53	2.1581	1550	1520	1490	1461	1431	1402	1372	1343	1314
.54	2.1285	1256	1227	1199	1170	1142	1113	1085	1057	1030
.55	2.1002	0974	0947	0919	0892	0865	0838	0811	0784	0758
.56	2.0731	0705	0678	0652	0626	0600	0574	0548	0523	0497
.57	2.0472	0447	0421	0396	0371	0346	0322	0297	0272	0248
.58	2.0224	0199	0175	0151	0127	0103	0080	0056	0032	0009
.59	1.9986	9962	9939	9916	9893	9871	9848	9825	9803	9780
.60	1.9758	9735	9713	9691	9669	9647	9626	9604	9582	9561
.61	1.9539	9518	9497	9475	9454	9433	9412	9392	9371	9350
.62	1.9330	9309	9289	9268	9248	9228	9208	9188	9168	9148
.63	1.9129	9109	9089	9070	9050	9031	9012	8993	8974	8955
.64	1.8936	8917	8898	8879	8861	8842	8824	8805	8787	8769
.65	1.8751	8733	8715	8697	8679	8661	8643	8626	8608	8590
.66	1.8573	8556	8538	8521	8504	8487	8470	8453	8436	8419
.67	1.8403	8386	8369	8353	8336	8320	8304	8287	8271	8255
.68	1.8239	8223	8207	8191	8175	8160	8144	8128	8113	8097
.69	1.8082	8066	8051	8036	8021	8006	7991	7976	7961	7946
.70	1.7931	7916	7902	7887	7872	7858	7843	7829	7815	7800
.71	1.7786	7772	7758	7744	7730	7716	7702	7688	7674	7661
.72	1.7647	7634	7620	7606	7593	7580	7566	7563	7540	7527
.73	1.7514	7501	7488	7475	7462	7449	7436	7423	7411	7398
.74	1.7385	7373	7360	7348	7336	7323	7311	7299	7287	7275
.75	1.7262	7250	7238	7227	7215	7203	7191	7179	7168	7156
.76	1.7144	7133	7121	7110	7098	7087	7076	7065	7053	7042
.77	1.7031	7020	7009	6998	6987	6976	6965	6954	6944	6933
.78	1.6922	6912	6901	6891	6880	6870	6859	6849	6838	6828
.79	1.6818	6808	6798	6788	6777	6767	6757	6748	6738	6728
.80	1.6718	6708	6698	6689	6679	6669	6660	6650	6641	6631
.81	1.6622	6613	6603	6594	6585	6576	6566	6557	6548	6539
.82	1.6530	6521	6512	6503	6494	6486	6477	6468	6459	6451
.83	1.6442	6433	6425	6416	6408	6399	6391	6383	6374	6366
.84	1.6358	6350	6341	6333	6325	6317	6309	6301	6293	6285
.85	1.6277	6269	6261	6253	6246	6238	6230	6222	6215	6207
.86	1.6200	6192	6185	6177	6170	6162	6155	6147	6140	6133
.87	1.6126	6119	6111	6104	6097	6090	6083	6076	6069	6062
.88	1.6055	6048	6041	6034	6028	6021	6014	6007	6001	5994
.89	1.5988	5981	5974	5968	5961	5955	5949	5942	5936	5929
.90	1.5923	5917	5911	5904	5898	5892	5886	5880	5874	5868
.91	1.5862	5856	5850	5844	5838	5832	5826	5821	5815	5809
.92	1.5803	5798	5792	5786	5781	5775	5770	5764	5759	5753
.93	1.5748	5742	5737	5731	5726	5721	5716	5710	5705	5700
.94	1.5695	5690	5684	5679	5674	5669	5664	5659	5654	5649
.95	1.5644	5640	5635	5630	5625	5620	5616	5611	5606	5601
.96	1.5597	5592	5587	5583	5578	5574	5569	5565	5561	5556
.97	1.5552	5547	5543	5539	5534	5530	5526	5522	5517	5513
.98	1.5509	5505	5501	5497	5493	5489	5485	5481	5477	5473
.99	1.5469	5465	5461	5457	5453	5449	5446	5442	5438	5435

TABLE XVIII. $(\cosh x)/x$

x	0	1	2	3	4	5	6	7	8	9
1.00	1.5431	5427	5423	5420	5416	5413	5409	5406	5402	5399
1.01	1.5395	5392	5388	5385	5382	5378	5375	5372	5368	5365
1.02	1.5362	5358	5355	5352	5349	5346	5343	5340	5337	5333
1.03	1.5330	5327	5324	5321	5319	5316	5313	5310	5307	5304
1.04	1.5301	5299	5296	5293	5290	5287	5285	5282	5279	5277
1.05	1.5274	5272	5269	5267	5264	5261	5259	5256	5254	5252
1.06	1.5249	5247	5244	5242	5240	5237	5235	5233	5231	5228
1.07	1.5226	5224	5222	5220	5217	5215	5213	5211	5209	5207
1.08	1.5205	5203	5201	5199	5197	5195	5193	5191	5189	5188
1.09	1.5186	5184	5182	5180	5179	5177	5175	5173	5172	5170
1.10	1.5168	5167	5165	5163	5162	5160	5159	5157	5156	5154
1.11	1.5153	5151	5150	5148	5147	5146	5144	5143	5142	5140
1.12	1.5139	5138	5136	5135	5134	5133	5132	5130	5129	5128
1.13	1.5127	5126	5125	5124	5123	5122	5121	5120	5119	5118
1.14	1.5117	5116	5115	5114	5113	5112	5111	5110	5110	5109
1.15	1.5108	5107	5106	5106	5105	5104	5104	5103	5102	5102
1.16	1.5101	5100	5100	5099	5099	5098	5097	5097	5096	5096
1.17	1.5096	5095	5095	5094	5094	5093	5093	5093	5092	5092
1.18	1.5092	5091	5091	5091	5091	5090	5090	5090	5090	5090
1.19	1.5089	5089	5089	5089	5089	5089	5089	5089	5089	5089
1.20	1.5089	5089	5089	5089	5089	5089	5089	5089	5089	5089
1.21	1.5090	5090	5090	5090	5090	5091	5091	5091	5091	5092
1.22	1.5092	5092	5093	5093	5093	5094	5094	5094	5095	5095
1.23	1.5096	5096	5097	5097	5098	5098	5099	5099	5100	5100
1.24	1.5101	5101	5102	5103	5103	5104	5105	5105	5106	5107
1.25	1.5107	5108	5109	5110	5110	5111	5112	5113	5114	5115
1.26	1.5115	5116	5117	5118	5119	5120	5121	5122	5123	5124
1.27	1.5125	5126	5127	5128	5129	5130	5131	5132	5133	5134
1.28	1.5135	5137	5138	5139	5140	5141	5143	5144	5145	5146
1.29	1.5147	5149	5150	5151	5153	5154	5155	5157	5158	5159
1.30	1.5161	5162	5164	5165	5167	5168	5169	5171	5173	5174
1.31	1.5176	5177	5179	5180	5182	5183	5185	5186	5188	5190
1.32	1.5192	5193	5195	5197	5198	5200	5202	5203	5205	5207
1.33	1.5209	5210	5212	5214	5216	5218	5220	5222	5223	5225
1.34	1.5227	5229	5231	5233	5235	5237	5239	5241	5243	5245
1.35	1.5247	5249	5251	5253	5255	5257	5259	5261	5264	5266
1.36	1.5268	5270	5272	5274	5277	5279	5281	5283	5285	5288
1.37	1.5290	5292	5295	5297	5299	5302	5304	5306	5309	5311
1.38	1.5313	5316	5318	5321	5323	5325	5328	5330	5333	5335
1.39	1.5338	5340	5343	5345	5348	5351	5353	5356	5358	5361
1.40	1.5364	5366	5369	5371	5374	5377	5380	5382	5385	5388
1.41	1.5390	5393	5396	5399	5402	5404	5407	5410	5413	5416
1.42	1.5418	5421	5424	5427	5430	5433	5436	5439	5442	5445
1.43	1.5448	5451	5454	5457	5460	5463	5466	5469	5472	5475
1.44	1.5478	5481	5484	5487	5490	5493	5497	5500	5503	5506
1.45	1.5509	5512	5516	5519	5522	5525	5529	5532	5535	5538
1.46	1.5542	5545	5548	5552	5555	5558	5562	5565	5569	5572
1.47	1.5575	5579	5582	5586	5589	5593	5596	5600	5603	5607
1.48	1.5610	5614	5617	5621	5624	5628	5631	5635	5639	5642
1.49	1.5646	5650	5653	5657	5660	5664	5668	5672	5675	5679

TABLE XVIII. $(\cosh x)/x$

x	0	1	2	3	4	5	6	7	8	9
1.50	1.5683	5686	5690	5694	5698	5702	5705	5709	5713	5717
1.51	1.5721	5725	5728	5732	5736	5740	5744	5748	5752	5756
1.52	1.5760	5764	5768	5772	5776	5780	5784	5788	5792	5796
1.53	1.5800	5804	5808	5812	5816	5820	5824	5828	5832	5837
1.54	1.5841	5845	5849	5853	5858	5862	5866	5870	5874	5879
1.55	1.5883	5887	5892	5896	5900	5904	5909	5913	5917	5922
1.56	1.5926	5931	5935	5939	5944	5948	5953	5957	5961	5965
1.57	1.5970	5975	5979	5984	5988	5993	5997	6002	6006	6011
1.58	1.6016	6020	6025	6029	6034	6039	6043	6048	6053	6057
1.59	1.6062	6067	6071	6076	6081	6085	6090	6095	6100	6104
1.60	1.6109	6114	6119	6124	6128	6133	6138	6143	6148	6153
1.61	1.6157	6162	6167	6172	6177	6182	6187	6192	6197	6202
1.62	1.6207	6212	6217	6222	6227	6232	6237	6242	6247	6252
1.63	1.6257	6262	6267	6272	6278	6283	6288	6293	6298	6303
1.64	1.6308	6314	6319	6324	6329	6334	6340	6345	6350	6355
1.65	1.6361	6366	6371	6377	6382	6387	6393	6398	6403	6409
1.66	1.6414	6419	6425	6430	6436	6441	6446	6452	6457	6463
1.67	1.6468	6474	6479	6485	6490	6496	6501	6507	6512	6518
1.68	1.6524	6529	6535	6540	6546	6552	6557	6563	6569	6574
1.69	1.6580	6586	6591	6597	6603	6608	6614	6620	6626	6631
1.70	1.6637	6643	6649	6655	6660	6666	6672	6678	6684	6690
1.71	1.6695	6701	6707	6713	6719	6725	6731	6737	6743	6749
1.72	1.6755	6761	6767	6773	6779	6785	6791	6797	6803	6809
1.73	1.6815	6821	6827	6833	6839	6845	6851	6858	6864	6870
1.74	1.6876	6882	6888	6895	6901	6907	6913	6919	6926	6932
1.75	1.6938	6945	6951	6957	6963	6970	6976	6982	6989	6995
1.76	1.7001	7008	7014	7020	7027	7033	7040	7046	7053	7059
1.77	1.7066	7072	7078	7085	7091	7098	7104	7111	7117	7124
1.78	1.7131	7137	7144	7150	7157	7164	7170	7177	7183	7190
1.79	1.7197	7203	7210	7217	7223	7230	7237	7244	7250	7257
1.80	1.7264	7270	7277	7284	7291	7298	7304	7311	7318	7325
1.81	1.7332	7339	7345	7352	7359	7366	7373	7380	7387	7394
1.82	1.7401	7408	7415	7422	7429	7436	7443	7450	7457	7464
1.83	1.7471	7478	7485	7492	7499	7506	7514	7521	7528	7535
1.84	1.7542	7549	7556	7563	7570	7578	7585	7592	7599	7606
1.85	1.7614	7621	7628	7635	7642	7650	7657	7665	7672	7679
1.86	1.7687	7694	7701	7709	7715	7723	7731	7738	7746	7753
1.87	1.7760	7768	7775	7783	7790	7797	7805	7813	7820	7828
1.88	1.7835	7843	7850	7858	7866	7873	7881	7888	7896	7904
1.89	1.7911	7919	7926	7934	7942	7956	7957	7965	7973	7980
1.90	1.7988	7996	8004	8011	8019	8027	8035	8042	8050	8058
1.91	1.8066	8074	8082	8089	8097	8105	8113	8121	8129	8137
1.92	1.8145	8153	8161	8169	8177	8184	8192	8200	8208	8216
1.93	1.8224	8233	8241	8249	8257	8265	8273	8281	8289	8297
1.94	1.8305	8313	8322	8330	8338	8346	8354	8362	8371	8379
1.95	1.8387	8395	8404	8412	8420	8428	8437	8445	8453	8462
1.96	1.8470	8478	8486	8495	8503	8512	8520	8528	8537	8545
1.97	1.8554	8562	8570	8579	8587	8596	8604	8613	8621	8630
1.98	1.8638	8647	8656	8664	8673	8681	8690	8698	8707	8716
1.99	1.8724	8733	8741	8750	8759	8767	8776	8785	8794	8802

TABLE XVIII. $(\cosh x)/x$

x	0	1	2	3	4	5	6	7	8	9
2.00	1.8811	8820	8828	8837	8846	8855	8864	8872	8881	8890
2.01	1.8899	8908	8916	8925	8934	8943	8952	8961	8970	8979
2.02	1.8988	8997	9005	9014	9023	9032	9041	9050	9059	9068
2.03	1.9077	9086	9095	9105	9114	9123	9132	9141	9150	9159
2.04	1.9168	9177	9187	9196	9205	9214	9223	9232	9242	9251
2.05	1.9260	9269	9279	9288	9297	9306	9316	9325	9334	9344
2.06	1.9353	9362	9372	9381	9390	9400	9409	9419	9428	9437
2.07	1.9447	9456	9466	9475	9485	9494	9504	9513	9523	9532
2.08	1.9542	9551	9561	9570	9580	9590	9599	9609	9619	9628
2.09	1.9638	9647	9657	9667	9677	9686	9696	9706	9715	9725
2.10	1.9735	9745	9754	9764	9774	9784	9794	9803	9813	9823
2.11	1.9833	9843	9853	9863	9872	9882	9892	9902	9912	9922
2.12	1.9932	9942	9952	9962	9972	9982	9992	*0002	*0012	*0022
2.13	2.0032	0042	0052	0062	0073	0083	0093	0103	0113	0123
2.14	2.0133	0144	0154	0164	0174	0184	0195	0205	0215	0225
2.15	2.0236	0246	0256	0267	0277	0287	0298	0308	0318	0329
2.16	2.0339	0349	0360	0370	0381	0391	0402	0412	0423	0433
2.17	2.0443	0454	0464	0475	0486	0496	0507	0517	0528	0538
2.18	2.0549	0560	0570	0581	0591	0602	0613	0623	0634	0645
2.19	2.0656	0666	0677	0688	0698	0709	0720	0731	0742	0752
2.20	2.0763	0774	0785	0796	0807	0817	0828	0839	0850	0861
2.21	2.0872	0883	0894	0905	0916	0927	0938	0949	0960	0971
2.22	2.0982	0993	1004	1015	1026	1037	1048	1059	1070	1082
2.23	2.1093	1104	1115	1126	1138	1149	1160	1171	1182	1194
2.24	2.1205	1216	1227	1239	1250	1261	1273	1284	1295	1307
2.25	2.1318	1329	1341	1352	1364	1375	1387	1398	1409	1421
2.26	2.1432	1444	1455	1467	1478	1490	1502	1513	1525	1536
2.27	2.1548	1559	1571	1583	1594	1606	1618	1629	1641	1653
2.28	2.1664	1676	1688	1700	1711	1723	1735	1747	1758	1770
2.29	2.1782	1794	1806	1818	1829	1841	1853	1865	1877	1889
2.30	2.1901	1913	1925	1937	1948	1961	1973	1985	1997	2009
2.31	2.2021	2033	2045	2057	2069	2081	2094	2106	2118	2130
2.32	2.2142	2154	2166	2179	2191	2203	2215	2228	2240	2252
2.33	2.2264	2277	2289	2301	2314	2326	2338	2351	2363	2376
2.34	2.2388	2400	2413	2425	2438	2450	2463	2475	2488	2500
2.35	2.2513	2525	2538	2550	2563	2575	2588	2601	2613	2626
2.36	2.2639	2651	2664	2676	2689	2702	2715	2727	2740	2753
2.37	2.2766	2778	2791	2804	2817	2830	2842	2855	2868	2881
2.38	2.2894	2907	2920	2933	2945	2958	2971	2984	2997	3010
2.39	2.3023	3036	3049	3062	3075	3088	3102	3115	3128	3141
2.40	2.3154	3167	3180	3193	3207	3220	3233	3246	3259	3272
2.41	2.3286	3299	3312	3326	3339	3352	3366	3379	3392	3406
2.42	2.3419	3432	3446	3459	3473	3486	3499	3513	3526	3540
2.43	2.3553	3567	3580	3594	3607	3621	3635	3648	3662	3675
2.44	2.3689	3703	3716	3730	3744	3757	3771	3785	3798	3812
2.45	2.3826	3840	3853	3867	3881	3895	3909	3922	3936	3950
2.46	2.3964	3978	3992	4006	4020	4033	4047	4061	4075	4089
2.47	2.4103	4117	4131	4145	4159	4173	4188	4202	4216	4230
2.48	2.4244	4258	4272	4286	4301	4315	4329	4343	4357	4372
2.49	2.4386	4400	4414	4429	4443	4457	4472	4486	4500	4515

TABLE XVIII. $(\cosh x)/x$

x	0	1	2	3	4	5	6	7	8	9
2.50	2.4529	4544	4558	4572	4587	4601	4616	4630	4645	4659
2.51	2.4674	4688	4703	4717	4732	4746	4761	4776	4790	4805
2.52	2.4820	4834	4849	4864	4878	4893	4908	4922	4937	4952
2.53	2.4967	4982	4996	5011	5026	5041	5056	5071	5085	5100
2.54	2.5115	5130	5145	5160	5175	5190	5205	5220	5235	5250
2.55	2.5265	5280	5295	5310	5325	5340	5356	5371	5386	5401
2.56	2.5416	5431	5447	5462	5477	5492	5508	5523	5538	5554
2.57	2.5569	5584	5599	5615	5630	5646	5661	5676	5692	5707
2.58	2.5722	5738	5754	5769	5785	5800	5816	5831	5847	5862
2.59	2.5878	5894	5909	5925	5940	5956	5972	5987	6003	6019
2.60	2.6035	6050	6066	6082	6098	6113	6129	6145	6161	6177
2.61	2.6193	6209	6224	6240	6256	6272	6288	6304	6320	6336
2.62	2.6352	6368	6384	6400	6416	6432	6448	6465	6481	6497
2.63	2.6513	6529	6545	6562	6578	6594	6610	6626	6643	6659
2.64	2.6675	6692	6708	6724	6741	6757	6773	6790	6806	6823
2.65	2.6839	6855	6872	6898	6905	6921	6938	6955	6971	6988
2.66	2.7004	7021	7038	7054	7071	7087	7104	7121	7137	7154
2.67	2.7171	7188	7204	7221	7238	7255	7272	7288	7305	7322
2.68	2.7339	7356	7373	7390	7407	7424	7440	7457	7474	7491
2.69	2.7508	7525	7543	7560	7577	7594	7611	7628	7645	7662
2.70	2.7679	7697	7714	7731	7748	7766	7783	7800	7817	7835
2.71	2.7852	7869	7887	7904	7921	7939	7956	7974	7991	8009
2.72	2.8026	8044	8061	8079	8096	8114	8131	8149	8166	8184
2.73	2.8202	8219	8237	8255	8272	8290	8308	8325	8343	8361
2.74	2.8379	8397	8414	8432	8450	8468	8486	8504	8522	8539
2.75	2.8557	8575	8593	8611	8629	8647	8665	8683	8701	8719
2.76	2.8738	8756	8774	8792	8810	8828	8846	8865	8883	8901
2.77	2.8919	8938	8956	8974	8992	9011	9029	9047	9066	9084
2.78	2.9103	9121	9139	9158	9176	9194	9213	9232	9250	9269
2.79	2.9288	9306	9325	9343	9362	9381	9399	9418	9437	9455
2.80	2.9474	9493	9512	9530	9549	9568	9587	9606	9624	9643
2.81	2.9662	9681	9700	9719	9738	9757	9776	9795	9814	9833
2.82	2.9852	9871	9890	9909	9928	9947	9966	9986	*0005	*0024
2.83	3.0043	0062	0082	0101	0120	0140	0159	0178	0197	0217
2.84	3.0236	0256	0275	0294	0314	0333	0353	0372	0392	0411
2.85	3.0431	0450	0470	0490	0509	0529	0549	0568	0588	0608
2.86	3.0627	0647	0667	0687	0706	0726	0746	0766	0786	0805
2.87	3.0825	0845	0865	0885	0905	0925	0945	0965	0985	1005
2.88	3.1025	1045	1065	1085	1105	1125	1146	1166	1186	1206
2.89	3.1227	1247	1267	1287	1307	1328	1348	1369	1389	1409
2.90	3.1430	1450	1470	1491	1511	1532	1552	1573	1593	1614
2.91	3.1634	1655	1676	1696	1717	1738	1758	1779	1800	1821
2.92	3.1841	1862	1883	1903	1924	1945	1966	1987	2008	2029
2.93	3.2050	2070	2091	2112	2133	2154	2175	2196	2218	2239
2.94	3.2260	2281	2302	2323	2344	2366	2387	2408	2429	2450
2.95	3.2472	2493	2514	2536	2557	2578	2600	2621	2643	2664
2.96	3.2685	2707	2728	2750	2771	2793	2815	2836	2858	2879
2.97	3.2901	2923	2944	2966	2988	3010	3031	3053	3075	3097
2.98	3.3118	3140	3162	3184	3206	3228	3250	3272	3294	3316
2.99	3.3338	3360	3382	3404	3426	3448	3470	3492	3514	3537

TABLE XIX.

x	sinh x	cosh x	x	sinh x	cosh x
0.00	0.0000000	1.0000000	0.0000	0.0000000	1.0000000
0.05	0.0500208	1.0012503	0.0005	0.0005000	1.0000001
0.10	0.1001668	1.0050042	0.0010	0.0010000	1.0000005
0.15	0.1505631	1.0112711	0.0015	0.0015000	1.0000011
0.20	0.2013360	1.0200668	0.0020	0.0020000	1.0000020
0.25	0.2526123	1.0314131	0.0025	0.0025000	1.0000031
0.30	0.3045203	1.0453385	0.0030	0.0030000	1.0000045
0.35	0.3571897	1.0618778	0.0035	0.0035000	1.0000061
0.40	0.4107523	1.0810724	0.0040	0.0040000	1.0000080
0.45	0.4653420	1.1029702	0.0045	0.0045000	1.0000101
0.50	0.5210953	1.1276260	0.0050	0.0050000	1.0000125
0.55	0.5781516	1.1551014	0.0055	0.0055000	1.0000151
0.60	0.6366536	1.1854652	0.0060	0.0060000	1.0000180
0.65	0.6967475	1.2187933	0.0065	0.0065000	1.0000211
0.70	0.7585837	1.2551690	0.0070	0.0070001	1.0000245
0.75	0.8223167	1.2946833	0.0075	0.0075001	1.0000281
0.80	0.8881060	1.3374349	0.0080	0.0080001	1.0000320
0.85	0.9561160	1.3835309	0.0085	0.0085001	1.0000361
0.90	1.0265167	1.4330864	0.0090	0.0090001	1.0000405
0.95	1.0994843	1.4862253	0.0095	0.0095001	1.0000451
1.00	1.1752012	1.5430806	0.0100	0.0100002	1.0000500
1.05	1.2538567	1.6037944	0.0105	0.0105002	1.0000551
1.10	1.3356475	1.6685186	0.0110	0.0110002	1.0000605
1.15	1.4207781	1.7374148	0.0115	0.0115003	1.0000661
1.20	1.5094614	1.8106556	0.0120	0.0120003	1.0000720
1.25	1.6019191	1.8884239	0.0125	0.0125003	1.0000781
1.30	1.6983824	1.9709142	0.0130	0.0130004	1.0000845
1.35	1.7990926	2.0583329	0.0135	0.0135004	1.0000911
1.40	1.9043015	2.1508985	0.0140	0.0140005	1.0000980
1.45	2.0142721	2.2488424	0.0145	0.0145005	1.0001051
1.50	2.1292795	2.3524096	0.0150	0.0150006	1.0001125
1.55	2.2496111	2.4618591	0.0155	0.0155006	1.0001201
1.60	2.3755680	2.5774645	0.0160	0.0160007	1.0001280
1.65	2.5074650	2.6995149	0.0165	0.0165007	1.0001361
1.70	2.6456319	2.8283155	0.0170	0.0170008	1.0001445
1.75	2.7904144	2.9641883	0.0175	0.0175009	1.0001531
1.80	2.9421743	3.1074732	0.0180	0.0180010	1.0001620
1.85	3.1012912	3.2585283	0.0185	0.0185011	1.0001711
1.90	3.2681629	3.4177315	0.0190	0.0190011	1.0001805
1.95	3.4432068	3.5854808	0.0195	0.0195012	1.0001901
2.00	3.6268604	3.7621957	0.0200	0.0200013	1.0002000
2.05	3.8195831	3.9483180	0.0205	0.0205014	1.0002101
2.10	4.0218567	4.1443132	0.0210	0.0210015	1.0002205
2.15	4.2341871	4.3506713	0.0215	0.0215017	1.0002311
2.20	4.4571052	4.5679083	0.0220	0.0220018	1.0002420
2.25	4.6911683	4.7965675	0.0225	0.0225019	1.0002531
2.30	4.9369618	5.0372206	0.0230	0.0230020	1.0002645
2.35	5.1951003	5.2904694	0.0235	0.0235022	1.0002761
2.40	5.4662292	5.5569472	0.0240	0.0240023	1.0002880
2.45	5.7510266	5.8373202	0.0245	0.0245025	1.0003001
2.50	6.0502045	6.1322895	0.0250	0.0250026	1.0003125

APPENDIX

A. NOTES ON THE TABLES

Tables XI and XII

All the tabular values needed for finding the sine, cosine or tangent of a number would be included if the tables were continued up to the functions of $\pi/2$, but this would have terminated the table in the midst of a page. Consequently the pages were filled out and this gave the values to 1.999. Actually the additional values afford some convenience and freedom.

The first ten multiples of π are given at the bottoms of the pages and these are for convenience in finding the functions of numbers 2 and greater. Thus, one can write any number in the form $n\pi + a$, where $a < 2$. He can then take the function of this compound form, and reduce it to a function of a by the trigonometrical formulae for the functions of compound angles.

For example,

$$\begin{aligned} \sin 10 &= \sin (3\pi + .5752) \\ &= \sin 3\pi \cos .5752 + \cos 3\pi \sin .5752 \\ &= -\sin .5752 \\ &= -.5440 \end{aligned}$$

Table XIII

The auxiliary table at the bottom of the second page makes it possible to get the natural logarithm of any number. Thus

$$\begin{aligned} \log_e 724 &= \log_e (7.24 \times 100) \\ &= \log_e 7.24 + \log_e 100 \\ &= 1.9796 + 4.6052 \\ &= 6.5848 \end{aligned}$$

Table XIV

This is a short table which is convenient for some instructional purposes in relating e^x, e^{-x}, cosh x and sinh x.

$$e^x = \cosh x + \sinh x,$$
$$e^{-x} = \cosh x - \sinh x.$$

A general table of e^x and e^{-x} is not given separately. Values of e^x could of course be obtained by reading Table XIII inversely, but they are more easily obtained by adding the values of cosh x and sinh x.

Accordingly, more complete values of e^x and e^{-x} are obtained by adding and subtracting cosh x and sinh x as given in Table XV.

Table XVIII

For $x < .10$, it is simpler to obtain $(\cosh x)/x$ from the table of $1/x$ than to interpolate. Thus, for this range of values of x one may write

$$\frac{\cosh x}{x} = \frac{1}{x} + \frac{x}{2}$$

Accordingly

$$\frac{\cosh .0428}{.0428} = 23.36 + .02 = 23.38$$

Table XIX

This short table of values is included so that one can if desired obtain for any number up to 2.5 a higher place value than is given in the main table, in case a regular seven-place table is not readily available. Every such number can be regarded as the sum of two numbers which fall within the range of this table, and the sum formula will give the functional value desired.

For example,

$$\begin{aligned}\sinh 1.781536 &= \sinh (1.80 - .018464)\\ &= \sinh 1.80 \cosh .018464 - \cosh 1.80 \sinh .018464\\ &= 2.9421743 \times 1.0001704 - 3.1074732 \times .018464\\ &= 2.885299\end{aligned}$$

B. HANDBOOK OF FORMULAE

Catenary Formulae*

Notation:

$(0,0)$ and (x,y) are points on the catenary,†

s = the length of the cable from $(0,0)$ to (x,y),

w = the weight per unit length,

T_0 and T are the tensions at $(0,0)$ and at (x,y),

(1) ψ_0 and ψ are the inclinations at $(0,0)$ and at (x,y),

k = a parameter ($\sinh k = \tan \psi_0$),

c = a parameter (the depth of the directrix below the vertex),

u = a parameter = $x/2c$,

k' = a parameter = $x/2c + k$,

(x', y') is the position of the vertex,

q = the sag of the vertex below the origin.

Relations:

Points of Support at Any Levels

$$y = c\left\{\cosh\left(\frac{x}{c} + k\right) - \cosh k\right\} = x \sinh k' \frac{\sinh u}{u},$$

$$s = c\left\{\sinh\left(\frac{x}{c} + k\right) - \sinh k\right\} = x \cosh k' \frac{\sinh u}{u},$$

$$T = wc \cosh\left(\frac{x}{c} + k\right) = w(y + c \cosh k) = \frac{wx}{2} \frac{\cosh (k' + u)}{u},$$

(2) $$T_0 = wc \cosh k = \frac{wx}{2} \frac{\cosh (k' - u)}{u},$$

$$\tan \psi = \sinh\left(\frac{x}{c} + k\right) = \sinh (k' + u),$$

$$\tan \psi_0 = \sinh k = \sinh (k' - u),$$

$$y/s = \tanh k',$$

$$x' = -ck = -c(k' - u),$$

$$q = c(\cosh k - 1) = \frac{x}{2} \frac{\cosh (k' - u) - 1}{u}.$$

*These formulae are developed in the author's *An Introduction to Mechanics*, chap. XIV

†For most of the applications, the points of support are at $(0,0)$ and (x,y).

Special Case

POINTS OF SUPPORT AT THE SAME LEVEL

In this case $y = 0$ and $k' = 0$, and relations (2) give:

$$\frac{s}{x} = \frac{\sinh u}{u}, \qquad \frac{2H}{wx} = \frac{1}{u},$$

$$\frac{2q}{x} = \frac{\cosh u - 1}{u}, \qquad \frac{2q}{s} = \tanh\frac{u}{2},$$

$$(3)\ \frac{2T}{wx} = \frac{\cosh u}{u}, \qquad \frac{ws}{2T} = \tanh u,$$

$$\tan \psi = \sinh u, \qquad \frac{T}{T - wq} = \cosh u,$$

$$\tan \psi_o = -\sinh u, \qquad T = H + wq.$$

Initial Steps in Three Common Problems of General Type.

1. Given x, y, c.

Determine u, and then use the first of (2) to find k'.

2. Given x, y, q.

From the last of (2),

$$\cosh k = 1 + q/c,$$

and therefore

$$\sinh k = -\sqrt{q^2 + 2cq}\ /c.*$$

On substituting these values into the expanded form of the first of (2), we find that c is a zero of the function

$$(4)\ f(c) = y - (c + q)\left(\cosh\frac{x}{c} - 1\right) + \sqrt{q^2 + 2cq}\,\sinh\frac{x}{c}$$

3. Given x, y *and* T/w.

By the third and fourth of (2), $\cosh\left(\frac{x}{c} + k\right) = \frac{n_1}{c}$ where $n_1 = T/w$, and $\cosh k = n_2/c$ where $n_2 = T/w - y$.

Therefore c is a zero of the function

$$(5)\ f(c) = \frac{x}{c} - \cosh^{-1}\frac{n_1}{c} \pm \cosh^{-1}\frac{n_2}{c}\ \dagger$$

*In each of these problems we shall assume the origin taken at the left hand support of the diagram, in which case k is negative when there is a sag and x is positive. If the origin is taken at the other end, both k and x change sign and the relations still hold.

†The ambiguity of sign arises from the fact that $\cosh k$ is an even function. The sign is $\pm$ according as k is $\pm$.

Variations Due to Changes of Temperature and Loading

NOTATION:

α = coefficient of linear expansion,
λ = the modulus of stiffness $= \pi d^2 E/4$,
Δt = the increase in temperature,
h' = the permanent set factor, if any, for the tension difference involved,
$h = \alpha \Delta t + h'$.

RELATIONS:

(7) If $u_1 > u$,

$$\frac{\sinh u_1}{u_1} = a + b\,(p_1 - c),$$

where

$$a = \frac{\sinh u}{u} + h \cosh^2 k' \frac{\sinh u}{u},\quad b = \frac{w_1 x \cosh k'}{4\lambda},$$

$$c = \frac{w}{w_1}\left[\cosh 2k' \frac{\sinh 2u}{2u} + 1\right]\frac{1}{u},\quad p_1 = \left[\cosh 2k' \frac{\sinh 2u_1}{2u_1} + 1\right]\frac{1}{u_1}.$$

(8) If u is small and $u_1 < u$,

$$\frac{1}{u_1} = a + b\,(p_1 - c),$$

where

$$a = \frac{w}{w_1}\frac{1}{u},\qquad b = \frac{2\lambda}{w_1 x \cosh^3 k'},$$

$$c = \frac{\sinh u}{u} + h \cosh^2 k' \frac{\sinh u}{u},\quad p_1 = \frac{\sinh u_1}{u_1}.$$

TABULAR FORM FOR SOLUTION:

Approx.	u_1	p_1	$p_1 - c$	$b(p_1 - c)$	$f(u_1)$	u_1
1						
2						
.						
.						

where $f(u_1) = (\sinh u_1)/u_1$ or $1/u_1$ according as (7) or (8) is being used.

NOTE: Relations (7) and (8) are adequate except when y/x is not small and, in addition, a strong transverse wind pressure is present. Special formulae for this case are given in the author's *Introduction to Mechanics*.

Transmission Line Formulæ

(*a*) Current and Voltage at Ends of Line

I. *Line Constants*

$$Z = R + jX,$$
$$Y = G + jB',$$
$$\theta = \sqrt{ZY},$$

where

Z = impedance for whole line,
Y = admittance for whole line,
θ = hyperbolic angle of the line or circuit,
R = resistance,
X = reactance,
G = conductance,
B' = capacitance.
$j = \sqrt{-1}$.

II. *Auxiliary Constants*

$$A = \cosh \theta,\ B = Z \frac{\sinh \theta}{\theta},\ C = Y \frac{\sinh \theta}{\theta}.$$

III. *Fundamental Relations*

$$E_s = E_r A + I_r B, \quad E_r = E_s A - I_s B,$$
$$I_s = I_r A + E_r C, \quad I_r = I_s A - E_s C,$$

where

E_s = voltage at sending end,
I_s = current at sending end,
E_r = voltage at receiving end,
I_r = current at receiving end.

(*b*) Current and Voltage at Any Point of Line

In terms of receiving end conditions:

$$i = I_r \cosh ax + \frac{E_r}{z_0} \sinh ax,$$

$$e = E_r \cosh ax + I_r z_0 \sinh ax.$$

In terms of sending end conditions:

$$i = I_s \cosh a\,(l-x) - \frac{E_s}{z_0} \sinh a\,(l-x),$$

$$e = E_s \cosh a\,(l-x) - I_s z_0 \sinh a\,(l-x),$$

where

$$z_0 = \sqrt{z/y}, \quad a = \sqrt{zy}, \quad \theta = al,$$

and

z = impedance per mile,
y = admittance per mile,
l = length of line in miles,
x = distance from receiving end in miles.

(*c*) A Form for Computing A, B, and C

Notation:

$$Z = z_1 + jz_2 = \rho_1 e^{j\varphi_1},$$

$$Y = jy_2{}^* = y_2 e^{j\pi/2},$$

$$\theta = \theta_1 + j\theta_2 = \rho_3 e^{j\varphi_3},$$

$$\sinh\theta = \rho_4 e^{j\varphi_4},$$

$$\frac{\sinh\theta}{\theta} = s_1 + js_2 = \rho_5 e^{j\varphi_5},$$

$$A = \cosh\theta = a_1 + ja_2,$$

$$B = Z\frac{\sinh\theta}{\theta} = b_1 + jb_2,$$

$$C = Y\frac{\sinh\theta}{\theta} = c_1 + jc_2.$$

Check: $A^2 = BC + 1$.

Computation Form:

Data.

$z_1 =$, $z_2 =$, $y_2 =$

Computations.

$\rho_1 = \sqrt{z_1{}^2 + z_2{}^2}$	=	=
$\varphi_1 = \tan^{-1}(z_2/z_1)$	=	=

* G is so small that it may usually be neglected.

$\rho_3 = \sqrt{\rho_1 y_2}$ = =

$\varphi_3 = \frac{1}{2}\varphi_1 - 45°$ = =

$\theta_1 = \rho_3 \cos \varphi_3$ = =

$\theta_2 = \rho_3 \sin \varphi_3$ = =

$\varphi_4 = \tan^{-1} \dfrac{\tan \theta_2}{\tanh \theta_1}$ = =

$\varphi_5 = \varphi_4 - \varphi_3$ = =

$\rho_5 = \dfrac{\sqrt{\cosh^2 \theta_1 - \cos^2 \theta_2}}{\rho_3}$ = =

$s_1 = \rho_5 \cos \varphi_5$ = =

$s_2 = \rho_5 \sin \varphi_5$ = =

Then

A:

$a_1 = \cosh \theta_1 \cos \theta_2$ = =

$a_2 = \sinh \theta_1 \sin \theta_2$ = =

$\therefore A$ =

B:

$b_1 = z_1 s_1 - z_2 s_2$ = =

$b_2 = z_1 s_2 + z_2 s_1$ = =

$\therefore B$ =

C:

$c_1 = -y_2 s_2$ = =

$c_2 = y_2 s_1$ = =

$\therefore C$ =

Check:

A^2 =

=

=

BC =

=

=

$BC + 1$ =

Formulæ for Solving Cubic Equations

Given the equation

$$(1)\quad x^3 + ax^2 + bx + c = 0,$$

then

$$(2)\quad y^3 - 3py - 2q = 0,$$

where

$$(3)\quad y = x + a/3,\ p = (a^2 - 3b)/9,$$
$$q = (9ab - 2a^3 - 27c)/54.$$

CASE 1.

If $p>0$, $q>0$, and $q^2>p^3$, then

$y_1 = 2\sqrt{p}\cosh u/3,$

$y_2 = -\frac{1}{2}y_1 + i\sqrt{3p}\sinh u/3,$

$y_3 = -\frac{1}{2}y_1 - i\sqrt{3p}\sinh u/3,$

where $\cosh u = q/\sqrt{p^3}$.

CASE 2.

If $p>0$, $q<0$, and $q^2>p^3$, then

$y_1 = -2\sqrt{p}\cosh u/3,$

$y_2 = -\frac{1}{2}y_1 + i\sqrt{3p}\sinh u/3,$

$y_3 = -\frac{1}{2}y_1 - i\sqrt{3p}\sinh u/3,$

where $\cosh u = -q/\sqrt{p^3}$.

CASE 3.

If $p<0$, then

$y_1 = 2\sqrt{-p}\sinh u/3,$

$y_2 = -\frac{1}{2}y_1 + i\sqrt{-3p}\cosh u/3,$

$y_3 = -\frac{1}{2}y_1 - i\sqrt{-3p}\cosh u/3,$

where $\sinh u = q/\sqrt{-p^3}$.

CASE 4.

If $p>0$, and $q^2<p^3$, then

$y_1 = 2\sqrt{p}\cos u/3,$

$y_2 = -\frac{1}{2}y_1 + \sqrt{3p}\sin u/3,$

$y_3 = -\frac{1}{2}y_1 - \sqrt{3p}\sin u/3,$

where $\cos u = q/\sqrt{p^3}$.

W8-BXS-159